

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

5011
R23

C.47/STA



United States
Department of
Agriculture

Forest Service

Tongass
National
Forest
R10-MB-81f

November 1989



Alaska Pulp Corporation Long-Term Timber Sale Contract

Final Supplement to the
Environmental Impact Statements
for the 1981-86 and 1986-90
Operating Periods

Executive Summary

USDA
NATL. AGRIC. LIBRARY
1989 AUG -1 A 7:08
FOREST SERVICE
TONGASS BRANCH

~~FS INFO-ALASKA~~
FORESTRY SCIENCES LABORATORY
2770 Sherwood Lane Suite 2A
Juneau, AK 99801-8545



Final Supplement to the Environmental Impact Statements
for the 1981-86 and 1986-90 Operating Periods

Alaska Pulp Corporation Long-Term Timber Sale Contract

Phase I Executive Summary

U.S.D.A. - Forest Service
Alaska Region
Alaska

Lead Agency	Alaska Region U.S.D.A. Forest Service Federal Office Building P.O. Box 21628 Juneau, Alaska 99802-1628
-------------	--

Responsible Official:	Michael A. Barton Regional Forester Alaska Region
-----------------------	---

For Further Information Contact:	James W. Pierce SEIS Team Leader U.S.D.A. Forest Service Alaska Region Federal Building P.O. Box 21628 Juneau, AK 99802-1628 (907) 586-8871
-------------------------------------	--

Phase I Summary

Purpose and Need for the Action

In 1956, the Forest Service and Alaska Lumber and Pulp, now Alaska Pulp Company (APC), entered into a timber sale contract for a 50-year period between 1961 and 2011. Every five years, since the enactment of the National Environmental Policy Act (NEPA) in 1969, an Environmental Impact Statement (EIS) has been prepared for the succeeding 5-Year Operating Plan.

To comply with NEPA, the Forest Service is supplementing the 1981-1986 and 1986-1990 Operating Plans for the APC Long-Term Sale Area Environmental Impact Statements (EISs). The Court case *Tenakee Springs v. Courtright* (October 16, 1986) challenged the adequacy of the Final EIS for the 1981-86 Operating Plan. In a Memorandum and Order (June 24, 1987), the Court concluded that the EIS for the 1981-86 Operating Period required supplementation.

A Settlement Agreement in the *Tenakee Springs v. Courtright* case was filed April 20, 1988. As a part of the Settlement Agreement the Forest Service agreed to prepare a supplement to the EIS for the 1981-86 Operating Period. The Settlement Agreement deferred road construction and timber harvest in certain areas (deferred areas) and authorized activities to proceed in other areas (non-deferred areas) without further consideration in the Supplement.

On October 15, 1987, a Notice of Intent was published in the Federal Register announcing the preparation of a supplement to the 1981-86 and 1986-90 Operating Period EISs.

On July 31, 1988, several residents of Hoonah, Alaska and others filed a lawsuit (*Hanlon v. Barton*) challenging the adequacy of the 1986-90 Plan FEIS with respect to activities planned near Hoonah. They claimed the activities proposed in the 1986-90 Operating Plan would significantly restrict subsistence uses, that the evaluations of environmental and subsistence values were not site-specific, that the Forest Service must evaluate cumulative subsistence impacts, that the Forest Service must consider a no-action alternative, and that there was a failure to evaluate impacts of "carryover" logging and road construction. On November 14, 1988, the Court denied a motion for preliminary injunction, but recognized the merit of some claims.

Pending the completion of the Supplement, the Forest Service agreed in the Settlement Agreement to defer timber harvest and road construction in certain areas and defer construction of a log transfer facility at Whitestone Harbor. Additionally, the Forest Service would hold Subsistence Hearings and consider an alternative that would not include carryover in certain Value Comparison Units.

Both the 1981-86 and 1986-90 EISs are being supplemented because: (1) many of the same harvest areas were analyzed in both, (2) many of the same issues were dealt with, and (3) re-analysis of issues in the 1981-86 EIS could affect those same issues in the 1986-90 EIS.

The Supplement has been divided into two phases. Phase I, presented in this document, analyzes the issues for the APC Contract area that were identified in court orders and from public comments on the EISs. It identifies which areas should be entered for further timber harvest and road construction and discusses the environmental impacts associated with these activities. Phase II provides additional information about the site-specific environmental

Phase I

impacts that would be caused by the road construction and timber harvest in the analysis areas identified in Phase I. Additionally, Phase II compares a no-action alternative.

The Final EIS Supplement is presented for public information will be used by the Regional Forester, the responsible official for the EIS Supplement, to select a preferred alternative and to issue a Record of Decision.

The Regional Forester must decide:

1. Whether the a) changes in landownership, b) harvest unit deferrals, deletions, or changes, and c) the effects of ANILCA subsistence requirements warrant changing the Records of Decision for the 1981-86 and 1986-90 EISs.
2. If the timber commitments of the APC Contract between the date of publication of the Supplement and the end of the 1986-1990 Operating Period (12/31/90) can be met in Value Comparison Units (VCUs) in areas in which timber harvest and road construction have not been deferred in the Notice of Intent.
3. How much timber volume will be required and from which VCUs, if the commitments cannot be met from harvest units in VCUs planned in the 1981-86 and 1986-90 EISs and not deferred in the Notice of Intent.

Availability of Documents

Copies of the EIS and ROD may be reviewed at public libraries in Southeast Alaska. The Draft SEIS documents and all related documents and files (planning records) which are incorporated by reference in the SEIS are available for review during regular business hours at the Forest Service, Regional Office, located in the Federal Building, Juneau, Alaska. Planning records for Analysis Areas 2, 3, and 6 may be reviewed at the Forest Supervisor's office, Chatham Area, Sitka, Alaska. Planning records for Analysis Area 12 may be reviewed at the Forest Supervisor's office, Stikine Area, Petersburg, Alaska. A limited number of copies of the Supplemental EIS are available on request.

Affected Area

The Contract area (about 50 miles by 110 miles) covers parts of Baranof, Chichagof, Kuiu, and associated islands. The total National Forest acreage of the Contract area is 1,854,347 acres. The landownership pattern is blocked with private lands clustered around Hoonah, Sitka, and Tenakee Springs.

Issues

The following issues are analyzed in the Supplement:

1. Changes in implementing the Plan since issuance of the Record of Decision, due to Native Corporation land selections and other actions resulting in deletion or deferral of harvest units from the Plan.
2. Further discussion of a no-action alternative (no further road construction or timber harvest until at least the next 5-year operating plan) specific to each drainage or similar geographic areas identified in the Notice of Intent.
3. Further site-specific detail regarding environmental effects of alternate road and harvest configurations in the Upper Game Creek area of Chichagof Island, an area about which the plaintiffs allege particular concern in the lawsuit.

4. Further discussion of cumulative impacts of foreseeable roading and timber harvest in the vicinity of Upper Game Creek, and impacts associated with any harvest practices on neighboring lands conveyed to Native Corporations.
5. Site-specific and cumulative environmental impacts associated with alternative road and timber harvest configurations in other areas included in the 1981-86 and 1986-90 Plan which are not expected to be entered prior to completion of the Supplement, equivalent to that required by the Court decision for Upper Game Creek.
6. Effect on subsistence resources and uses in relation to alternatives considered in the Supplement in accordance with Section 810 of ANILCA. Subsistence was not separately considered in the 1981-86 EIS because ANILCA was enacted after approval of that EIS.
7. Mitigating measures considered in the alternatives in the Supplement.

Alternatives

Changes in harvest units, Native ownerships, subsistence use, and the "No Action-Current Direction" alternatives that have occurred since the 1981-86 and 1986-90 EISs are included in the Final SEIS. Analysis Areas for Phase II of the Supplement are defined and analyzed. In response to *Hanlon v. Barton*, a No Further Harvest Alternative is also considered and is described in each Phase II document.

The Supplement Phase II timber needs (in Thousands of Board Feet or MBF) through the end of the 1986-90 Operating Period (as of December 7, 1987) are computed below:

Timber appraised as of January 1, 1986	696,219 MBF
Less timber scaled Calendar Year 86 & 87	<u>146,704 MBF</u>
Supplement timber through December 31, 1990	549,515 MBF
Less non-deferred timber (not deferred in the Notice of Intent)	<u>320,362 MBF</u>
Timber supply needs for Phase II	229,153 MBF

The timber supply need is being monitored and is evaluated in the Phase II documents. It is also a consideration in the Record of Decision.

Sixteen Analysis Areas are evaluated in Phase I. These areas are:

Analysis Area 1	Elfin-Pelican
Analysis Area 2	Mud Bay-Neka
Analysis Area 3	Freshwater-Whitestone
Analysis Area 4	Tenakee-Crab
Analysis Area 5	Ushk Bay-Hoonah Sound
Analysis Area 6	Corner Bay
Analysis Area 7	Rodman Bay
Analysis Area 8	Neva-Upper Kruzof
Analysis Area 9	Kelp Bay-Hidden Falls
Analysis Area 10	Sitka-Silver Bay
Analysis Area 11	Port Alexander
Analysis Area 12	Kuiu
Analysis Area 13	South Kuiu
Analysis Area 14	West Chichagof Wilderness
Analysis Area 15	South Baranof Wilderness
Analysis Area 16	Tebenkof Bay Wilderness

Phase I

Analysis Areas 14, 15, and 16 will not be further considered due to their Wilderness classification. Analysis Areas 1, 4, 7, 8, 9, 10, 11, and 13 have a low probability for providing harvestable timber within the Supplement time frames due to access and logistics. They are not considered further in Phase II. Analysis Area 5 is marginal in terms of access and logistics. Analysis Areas 2, 3, 6, and 12 were given high priority for further evaluation in Phase II.

The following potential timber volumes were found in these Analysis Areas to meet the 229.9 million board feet timber volume supply needed for the remainder of the 1986-90 Operating Period Contract requirements.

<i>Analysis Area</i>	<i>Range of Estimated Outputs for Phase II</i>
2	70 to 80 MMBF (28.2 MMBF was available)
3	250 to 280 MMBF (194.3 MMBF was available)
6	80 to 90 MMBF (19.6 MMBF was available)
12	150 to 170 MMBF (78.3 MMBF was available)

Purpose of Phase II

Phase II evaluation of Analysis Areas 2, 3, 6, and 12 provides further site-specific information on harvest units and roads discussed for these Analysis Areas in the 1981-86 and 1986-90 EIS Alternatives. Phase II does not consider changes in the planned 1981-86 or 1986-90 harvest units or roads in areas not deferred in the Notice of Intent. A No Further Harvest Alternative resulting from the *Hanlon v. Barton*, Stipulation for Entry of Injunction, filed March 21, 1989, is included. In Stipulation 3.b): the Forest Service agreed to discuss a No Further Harvest alternative for planned timber harvest in Value Comparison Units (VCUs) 201, 202, 208, 209, 210, 212, 213, 214, 215, 216, 217, and 218. In this alternative, no further timber harvest would take place in these VCUs through the balance of the 1986-90 Operating Plan Period. Additional or new alternatives may also be developed in the non-deferred areas or in VCUs deferred in the Notice of Intent. The standards, guidelines, and mitigation measures are further supplemented in the Phase II documents.

Final Supplement to the Environmental Impact Statements
for the 1981-86 and 1986-90 Operating Periods

Alaska Pulp Corporation Long-Term Timber Sale Contract

**Analysis Area 2: Mud Bay - Neka
Executive Summary**

**U.S.D.A. - Forest Service
Alaska Region
Alaska**

Lead Agency

**Alaska Region
U.S.D.A. Forest Service
Federal Office Building
P.O. Box 21628
Juneau, Alaska 99802-1628**

Responsible Official:

**Michael A. Barton
Regional Forester
Alaska Region**

**For Further Information
Contact:**

**James W. Pierce
SEIS Team Leader

U.S.D.A. Forest Service
Alaska Region
Federal Building
P.O. Box 21628
Juneau, AK 99802-1628
(907) 586-8871**

**Gordon Anderson
Chatham Area
Team Leader
Tongass National Forest
Chatham Area
204 Siginaka Way
Sitka, AK 99835
(907) 747-6671**

Analysis Area 2 Summary

In 1956, the Forest Service and Alaska Lumber and Pulp, now Alaska Pulp Corporation (APC), entered into a timber sale contract that terminates in 2011. Every five years since implementation of the National Environmental Policy Act (NEPA), the Forest Service has prepared an environmental impact statement (EIS) for the succeeding Five-Year Operating Plan.

The Federal District Court Case, *Tenakee Springs v. Courtright*, challenged the adequacy of the 1981-86 Operating Plan EIS under NEPA. In a 1987 decision, the Court found that the Forest Service would need to prepare a supplement to the 1981-86 EIS to address issues raised by departures from the original 1981-86 Operating Plan. The departures have included the deletion or deferral of harvest units on lands selected for conveyance to Native corporations under the Alaska Native Claims Settlement Act (ANCSA) of 1971.

In addition to changing the Operating Plan, the Court identified three other issues requiring further analysis including: the need to consider a no-action alternative specific to the Upper Game Creek Area of Chichagof Island, the need for more site-specific detail regarding environmental effects of alternate road and harvest configurations in the Upper Game Creek Area, and additional analysis in the Upper Game Creek Area of the foreseeable cumulative impacts on the environment resulting from an expanding network of roads and harvest units.

The Forest Service decided to supplement both the 1981-86 and 1986-90 EISs because both documents analyzed many of the same harvest areas and dealt with the same issues, and reanalysis of issues in the 1981-86 EIS could affect the same issues in the 1986-90 EIS. The Notice of Intent for the supplement was published in the Federal Register on October 15, 1987.

The EIS Supplement has been prepared in two phases. Phase I provided information and analysis of the issues, narrowing the focus from the whole APC Long-term Timber Sale area to four specific Analysis Areas (2, 3, 6, and 12) that should be further evaluated for timber harvest and road construction through the balance of the Plan period, ending December 31, 1990. This document presents site-specific analysis of environmental impacts of proposed roads and harvest units in the Mud Bay-Neka area of Chichagof Island, designated as Analysis Area 2.

This document uses four main chapters to discuss the purpose and need for supplementing the previous EISs, the alternatives including the proposed action, the existing conditions of the affected environment, and the environmental consequences of the alternatives as well as measures to mitigate adverse effects. A number of appendices contain supporting materials.

On the basis of the Phase I and Phase II SEIS analysis, the Regional Forester must decide:

- If the changes in land ownership, deferrals, deletions, or changes of timber-harvest units, and the effects of the Alaska National Interest Lands Conservation Act (ANILCA) subsistence legislation warrant amending the Records of Decision for the 1981-86 or 1986-90 EISs.
- If the contractual timber commitments between the date of publication of this document and the end of 1986-90 Operating Period should be met from Value Comparison Units (VCUs) that have some existing access roads and harvest units.
- If the contractual commitments are not met from previously roaded VCUs, how much additional timber will be needed and from which VCUs the timber harvest will be scheduled.

Analysis Area 2

The issues discussed in the 1981-86 and 1986-90 EIS include:

1. The socioeconomic effects of logging and associated development on employment, business, populations and quality of life.
2. The costs and benefits or trade-offs between environmental protection measures and the economics of the harvest activities.
3. The effects of timber harvest activities on fish habitat.
4. The effects of timber harvest activities on wildlife habitat.
5. The distribution of harvest by volume class.
6. The locations and environmental effects of log transfer facilities.
7. Maintaining resource values in high interest areas noted for fisheries, wildlife, recreation, or other values.
8. Effects on visual, recreation, and wilderness resources.

Other issues specified by the Court during the appeals process include consideration of a no-action alternative, consideration of effects on subsistence pursuant to Section 810 of ANILCA, and consideration of foreseeable long-term and cumulative effects of timber harvest. In 1988, a case (*Hanlon v. Barton*) filed in Federal District Court raised several issues regarding the effects of timber harvest near Hoonah on subsistence users. The Court recognized the merit of some claims which have implications for Analysis Area 2: consideration of a no further harvest alternative and consideration of "carryover" logging and road construction.

To address the issues and comply with NEPA regulations while meeting the APC Contract requirements, the Forest Service developed three alternatives for the Analysis Area 2 Draft SEIS. Alternative 1, the No Action - Current Direction option, would permit the activities currently authorized by the Court to continue, i.e., five previously authorized harvest units containing about three million board feet that remain would be harvested. A no further harvest option would stop all further road construction and timber harvest at the time of the Record of Decision. This option would remain in effect through December 31, 1990. Alternative 2 proposes the harvest of 45.2 million board feet (MMBF) of timber in 31 units on 2,108 acres in VCUs 193 and 201. All of these harvest units were previously evaluated in one or more alternatives of the 1986-90 EIS. No new units or roads are proposed in this Supplement. This alternative emphasizes anadromous fish habitat, deer winter range, and other important wildlife values, as well as amenity resource values.

Alternative 3 proposes to harvest 85 MMBF from 58 harvest units on 3,648 acres in VCUs 193, 198, 200, 201, and 202. All of these harvest units were previously evaluated in one or more alternatives previously evaluated in one or more alternatives of the 1986-90 EIS. No new units or roads are proposed in this Supplement. This alternative continues the theme of wildlife emphasis from Alternative 2 and adds volume to supply the Eight Fathom Bight, Salt Lake Bay, and the (Native corporation-owned) West Port Frederick camp and log transfer facilities.

The No Action Alternative 1 would have no additional environmental impacts. Neither Alternative 2 nor Alternative 3 proposes roads or units on extreme hazard soils. Both alternatives would alter noncommercial and understory species composition, but not to a significant extent. Both would involve a single stream crossing that would require a benefit/cost study. Both action alternatives would maintain AHMU buffers on Class I, II, and III streams. Most buffers on Class I streams would be 75 or 100 feet wide.

Neither of the action alternatives would affect estuarine fringe, eagle trees, or inland wetlands. Both alternatives would affect 193 acres of deer winter range and place less than 1.5

Analysis Area 2

percent harvest in streamside riparian zones. Alternative 2 would affect 115 acres of prescribed old-growth habitat and Alternative 3 would affect 199 acres.

Both action alternatives would continue use of the Eight Fathom Bight camp and log transfer facility, while Alternative 3 would require use of the facilities at Salt Lake Bay and the Native corporation-owned West Port Frederick. The action alternatives would affect recreation only in areas that are lightly used by the public, that already contain roads, or that are accessible only with all-terrain vehicles.

The harvest units identified by both action alternatives would not meet assigned visual quality objectives. Maximum deviation would be 5 percent for one VCU in Alternative 2 and 17 percent for one VCU in Alternative 3. The Forest Service would conduct inventory, evaluation, and mitigation of cultural resources sites, pursuant to an agreement with the State Historic Preservation Officer, to avoid adverse impacts under either alternative. No known cultural resource sites will be affected by either alternative. Neither action alternative would result in significant effects on subsistence use.

A Subsistence Evaluation was conducted pursuant to ANILCA Section 810, including public hearings held in subsistence communities in the vicinity of Analysis Area 2. It found that none of the Analysis Area 2 alternatives would cause an immediate or reasonably foreseeable significant possibility of a significant restriction of subsistence use of wildlife, fish and shellfish, or other food resources. The evaluation further found that enough is known about foreseeable, programmatic Forest Service activities and foreseeable other potential activities to project that the cumulative effects may possibly restrict subsistence uses.

The two action alternatives were found to be similar in an evaluation of most of the eight issues. Most of the issues concern environmental impacts, including effects on fish and wildlife habitat and the marine environment, visual resources, recreation, wilderness, and high interest areas, which were concluded to be minimal. The analysis found that neither of the action alternatives would harvest a significant amount or percentage of high volume stands.

Chapter 4 of the SEIS for Analysis Area 2 identifies numerous measures to mitigate the adverse impacts of timber harvest activities. These measures are used to protect or enhance fish and wildlife habitat, protect aesthetic values, prevent landslides and windthrow, and improve timber stands. Various Forest Service documents have discussed the standards, guidelines, monitoring, and mitigation measures in detail. Their purpose is to foresee and avoid or prevent potential problems in the planning phases of forest management. The potential effectiveness of proposed mitigation measures is also discussed.

Mitigation measures identified in Chapter 4 of the SEIS include, for example, creating irregular unit boundaries on visually sensitive units, using log yarding suspension requirements to protect sensitive soils, and providing signs to direct recreation traffic along the trails affected by harvest activities. Other mitigation measures consist of monitoring recreation use to determine the need for access restrictions, using streambank protection measures to maintain stable stream channels, using second-growth management techniques for areas of harvested deer winter range, and avoiding known cultural resources sites.

The alternatives differ considerably in economic benefits. The no action Alternative 1 would result in a potential loss of 29 jobs and about \$0.7 million in salaries for the volume not harvested. By contrast, Alternative 2 would maintain 384 jobs and \$8.9 million in salaries. Alternative 3 would maintain 721 jobs and almost \$16.8 million in salaries.

Selection of the no action Alternative 1 would cause a high level of public concern. It could reduce employment in Hoonah as well as reduce the supply of sawlogs to the Wrangell mill and pulp logs to the APC plant in Sitka. This alternative would require the Forest Service to provide sufficient volume in other parts of the APC Contract area, and probably would cause the Forest Service to breach its contractual obligations.

Analysis Area 2

The volume harvested under Alternative 2 is in the low range of that identified in Phase I of the SEIS. This alternative is considered to be highly effective in implementing TLMP guidelines for Land Use Designation (LUD) class III and IV VCUs. Alternative 2 was considered to be moderately to highly sensitive in public concern, because it proposes harvest near Mud Bay, an area that is included in new Tongass timber reform legislation.

Alternative 3 proposes the same activities as Alternative 2 but adds more harvest and road building activities. It is rated highest in meeting APC contractual volume needs projected in Phase I of the SEIS. This alternative has the same potential public concern as Alternative 2. Members of the public may express concern over the cumulative effects of harvest on private lands in VCUs 198 and 200 with additional harvest proposed in the same watersheds on National Forest lands.

The Chatham Area management team evaluated the benefits and impacts of each alternative against the issues to recommend the preferred alternative. Alternative 3 is tentatively identified as the preferred alternative, pending further consideration in the Record of Decision.

Comparison of the Alternatives

The comparison of alternatives draws together the conclusions from the materials presented throughout the SEIS and summarizes the results of the analysis. The following section compares the environmental impacts of the alternatives on the basis of the more detailed analysis in Chapter 4 of the SEIS for Analysis Area 2. The following discussion focuses on the issues, presenting a perspective on their perceived importance.

Impact Comparison

Table AA2-1 provides a summary comparison of the impacts anticipated from each of the alternatives. This table summarizes the more detailed information found in Chapter 4, Environmental Consequences, of the SEIS for Analysis Area 2. Figure AA2-1 shows a comparison of road construction for all alternatives as a basis for understanding some of the comparisons in Table AA2-1.

Issue Comparison

The following paragraphs compare the alternatives in terms of the issues as described in Chapter 1 of the SEIS.

Issue 1: Socioeconomic effects of timber harvesting and associated development.

The baseline for comparison of alternatives is the No Action-Current Direction Alternative. The Forest Service predicted that all of the available volume in the nondeferred VCUs would be harvested by the end of the current 1989 operating season. However, at the time of the FEIS, five units remain unharvested. Since there is currently no harvest activity in the area, it is unlikely that they will be harvested by the release of the ROD. This alternative assumes no additional volume, beyond that authorized by the court, would be made available to support the existing operations at Eight Fathom Bight or Salt Lake Bay for the balance of the Plan period ending December 31, 1990. Harvest of APC long-term sale volume in Analysis Area 2 averaged 6.6 million board feet from 1986-1988, which supported approximately 56 jobs (direct and indirect employment) in Southeast Alaska. The Alaska Wrangell mill currently relies very heavily upon timber made available under the APC Contract. Company officials have stated that a loss of this additional volume would cause them to reduce employment to a single shift, resulting in a loss of 80 jobs (Appendix A-4B, Draft SEIS). A reduction to a single shift would also have the relative impact of doubling the fixed costs of the sawmill, according to its manager. The impact of such a change in the employment base of Wrangell would be major.

A No Further Harvest Alternative in Analysis Area 2 would have severe consequences on the ability of the Forest Service to meet its contractual obligations to the Alaska Pulp Corporation. The No Further Harvest Alternative could result in the Government breaching the terms of the Contract, if the Forest Service was unable to make up the volume in other areas. Unilateral breach and possible termination of the long-term timber sale contracts would likely result in a large damage claim which the Congressional Research Service estimates might be as high as \$53.7 million for the APC contract.

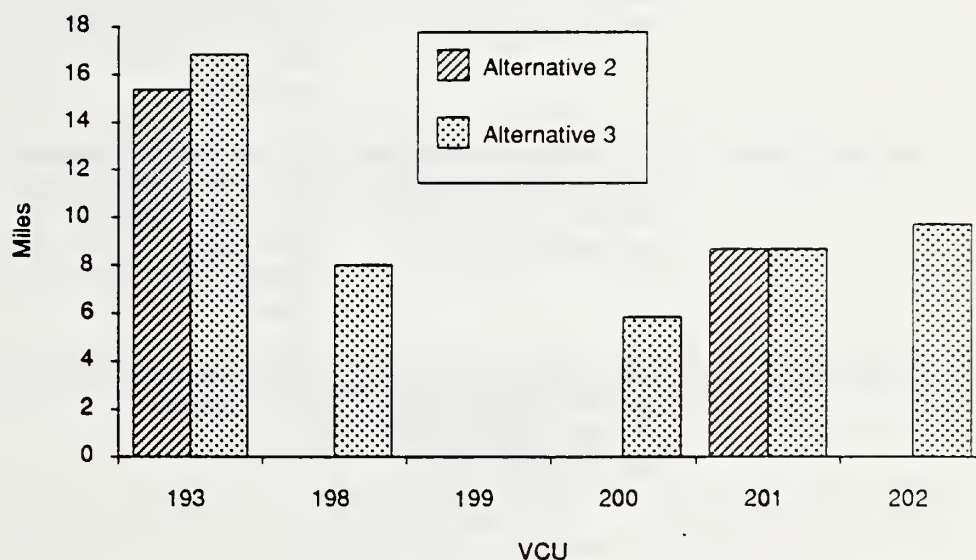
Alternatives 2 and 3 provide a range of timber volume that would provide sufficient volume to keep the existing employment opportunities in place in Analysis Area 2. Alternative 3, which provides the most volume, would maintain approximately 721 direct and indirect jobs. Alternative 2 would maintain 384 direct and indirect jobs. Refer to the Economic Comparisons section of Chapter 2, SEIS for Analysis Area 2 for further discussion.

Issue 2: Costs and benefits associated with implementing the alternatives.

The No Action, Current Direction Alternative provides the baseline for comparing the impacts of this issue. The summary of cost/value analysis presented in the Economic Comparison section of the SEIS for Analysis Area 2 describes the dollar values maintained or forgone by each of the alternatives being evaluated. The No Further Harvest Alternative could also impact the cost of operation at the APC Pulp Mill, where a volume disruption of this type could cause the pulp mill to experience temporary shutdowns. The cost of a temporary shutdown is estimated by APC to be \$500,000, plus \$4,800 for every day of shutdown (Appendix A-4C, Draft SEIS). None of the alternatives would have any measurable direct effect on commercial fishing, recreation, tourism, or other sectors of the economy.

Figure AA2-1

Road Construction Required for Each Alternative in Each VCU



SOURCE: SEIS Planning Record

Analysis Area 2

Table AA2-1

Summary Comparison of Alternatives¹

	Alternative 1 No Action/Current Direction	Alternative 2	Alternative 3
Soils	No additional impacts.	No units or roads would be located on extreme hazard soils. This would greatly reduce the potential to adversely impact long-term soil productivity, mass wasting, and soil loss. Logging operations will result in approximately 5 to 10 percent bare mineral soil that will be more erodible than undisturbed soils.	No units or roads would be located on extreme hazard soils. This would greatly reduce the potential to adversely impact long-term soil productivity, mass wasting, and soil loss. Logging operations will result in approximately 5 to 10 percent bare mineral soil that will be more erodible than undisturbed soils.
Vegetation	Tree and understory species composition and density would not be further changed.	Tree and understory species composition would be slightly altered on 2,108 acres.	Tree and understory species composition would be slightly altered on 3,648 acres.
Wildlife Habitats			
<i>Forested</i>	Forested habitat would not be further impacted. About 6 percent of the acres have already been harvested.	Approximately 2,108 acres or 1.8 percent of original forested habitat impacted. This would make a cumulative harvest of 8 percent of forested habitat.	Approximately 3,648 acres or 3.0 percent of original forested habitat impacted. This would make a cumulative harvest of 9 percent of forested habitat.
<i>Deer Winter Range</i>	Deer winter range would not be further impacted. About 6 percent of the acres have already been harvested.	Approximately 193 acres or 1.1 percent of original deer winter range impacted. This would make a cumulative harvest of 7 percent of deer winter range.	Approximately 193 acres or 1.1 percent of original deer winter range. This would make a cumulative harvest of 7 percent of deer winter range.
<i>Inland Wetlands</i>	Inland wetlands would not be further impacted. About 15 acres or 2 percent have been impacted to date.	Inland wetlands would not be further impacted.	Inland wetlands would not be further impacted.

(Continued)

Table AA2-1 (Continued)

Summary Comparison of Alternatives¹

	Alternative 1 No Action/Current Direction	Alternative 2	Alternative 3
<i>Beach Fringe</i>	Beach fringe would not be further impacted. About 614 acres or 8 percent have been impacted to date.	Beach fringe would not be further impacted.	Beach fringe would be not be further impacted.
<i>Estuarine Fringe</i>	Estuarine fringe would not be further impacted. About 469 acres or 9 percent have been impacted to date.	Estuarine fringe would not be further impacted.	Estuarine fringe would not be further impacted.
<i>Streamside Riparian</i>	Streamside riparian habitat would not be further impacted. About 259 acres or 5 percent have been impacted to date.	Approximately 41 acres or 0.6 percent of historical streamside riparian habitat impacted. This would make a cumulative harvest of 6 percent of streamside riparian habitat.	Approximately 78 acres or 1.5 percent of historical streamside riparian habitat impacted. This would make a cumulative harvest of 7 percent of streamside riparian habitat.
<i>Eagle Sites</i>	No eagle sites would be impacted.	No eagle sites would be impacted.	No eagle sites would be impacted.
<i>Old Growth</i>	About 16,783 acres of prescribed old-growth habitat identified in the 1986-90 FEIS would not be further impacted.	Approximately 115 acres or 0.5 percent of the prescribed old-growth conditions impacted.	Approximately 199 acres or 1.2 percent of the prescribed old-growth conditions impacted.
Wildlife Species	Wildlife species would not be further impacted	Over 90 percent of all wildlife habitats would remain.	Over 90 percent of all wildlife habitats would remain.
Fisheries			
<i>Harvest Units</i>	No further impacts.	AHMU buffers on Class I streams will be maintained at 100 feet in 3 harvest units, 75 feet in 1 unit, and 50 feet in 2 units. On Class II streams, 4 units have 50-foot buffers. One unit on a Class III stream will have a 25-foot buffer.	AHMU buffers on Class I streams will be maintained at 100 feet in 7 harvest units, 75 feet on 2 units, and 50 feet on 2 units. On Class II streams, 2 units will have 75-foot buffers and 7 units will have 50-foot buffers. One unit on a Class III stream will have a 25-foot buffer.

(Continued)

Analysis Area 2

Table AA2-1 (Continued)

Summary Comparison of Alternatives¹

	Alternative 1 No Action/Current Direction	Alternative 2	Alternative 3
<i>Roads and Crossings</i>	No further impacts.	About 1 mile of system road requires AHMU protection measures. One stream crossing would require benefit/cost analysis.	About 1 mile of system road requires AHMU protection measures. One stream crossing would require benefit/cost analysis.
<i>Stream Flow</i>	No change	Less than 25 percent of individual watersheds harvested. Little potential for increased stream flow runoffs.	Less than 25 percent of individual watersheds harvested. Little potential for increased stream flow runoffs.
<i>Sediment</i>	No change	Application of BMP and standards and guidelines is expected to minimize erosion impacts.	Application of BMP and standards and guidelines is expected to minimize erosion impacts.
Marine Environment	Some existing bark deposits from existing LTFs.	Small incremental additions to existing bark deposits at LTF at Eight Fathom Bight. No new LTF locations proposed.	Small incremental additions to existing bark deposits at Eight Fathom Bight, Salt Lake Bay, and West Port Frederick. No new LTF locations proposed.
Land Status	No impacts to private lands, cabins, or mining claims.	Field verification of proposed units has avoided effects on private land, native lands, cabins, or mining claims in VCUs 193 and 201.	Field verification of proposed units has avoided effects on private land, native lands, cabins, or mining claims in VCUs 193, 198, 200, 201, and 202.
Recreation	Maintains existing recreational character.	Recreation use not expected to increase. Shift of primitive and semi-primitive non-motorized ROS classes to semi-primitive motorized and roaded modified classes in VCUs 193 and 201 but no ferry access.	Recreation use not expected to increase. Similar changes in ROS classes as Alternative 2 in VCUs 193 and 201, as well as VCUs 198, 200, and 202.

(Continued)

Table AA2-1 (Continued)

Summary Comparison of Alternatives¹

	Alternative 1 No Action/Current Direction	Alternative 2	Alternative 3
Visual	Visual character would not be affected.	Two VCUs entered, neither would meet assigned VQOs. Deviation from assigned VQOs is 2 percent in VCU 193, LUD III and 5 percent in VCU 201, LUD IV.	Five VCUs entered. Two meet assigned VQOs. Deviation from assigned VQOs is 2 percent in VCU 193, LUD III; 5 percent in VCU 201, LUD IV; and 17 percent in VCU 202, LUD III.
Cultural Resources	No impact	Before logging activities are undertaken, FS personnel will apply research design, evaluate resources, determine impacts, and design necessary mitigation measures.	Before logging activities are undertaken, FS personnel will apply research design, evaluate resources, determine impacts, and design necessary mitigation measures.
Socioeconomics	Impacts would include loss of 29 jobs and \$.7 million in salaries for the timber industry. Seven outfitters use the area. Little change is expected.	Harvest volume would maintain 384 jobs and \$8.9 million in salaries. No noticeable changes expected in tourism due to this alternative.	Harvest volume would maintain 721 jobs and \$16.8 million in salaries. No noticeable changes expected in tourism due to this alternative.
Subsistence	Significant possibility of a significant restriction of subsistence use of wildlife, when combined with activities on adjacent private land.	Significant possibility of a significant restriction of subsistence use of wildlife, when combined with activities on adjacent private lands.	Significant possibility of a significant restriction of subsistence use of wildlife, when combined with activities on adjacent private lands.
Timber/Firewood	Free use policies not affected.		Free use policies not affected.
Reasonably Foreseeable and Long-Term Impacts to all Resources	Minimal effects from this alternative.	Minimal effects from this alternative, except for Subsistence as described above.	Minimal effects from this alternative, except for Subsistence as described above.

¹ A detailed comparison of impacts is found in Chapter 4 of the SEIS for Analysis Area 2.

Analysis Area 2

Issue 3: Effects of timber harvest and related activities on fisheries habitat.

The baseline for comparison of alternatives is the No Action-Current Direction Alternative. The assumptions made for the socioeconomic issue also pertain to the comparison of proposed timber harvest alternative effects on fisheries.

The effects evaluation of the proposed timber harvest alternatives for Analysis Area 2 presented in Chapter 4 of the SEIS clearly show the potential effects on the fisheries resources evaluated to be minimal. The Alaska Region Aquatic Habitat Management Unit (AHMU) Guidelines were adopted in the development of the timber harvest alternatives in order to minimize the potential for impact to the valuable salmon and trout fisheries in Analysis Area 2. The adherence to the AHMU Guidelines in the formation of alternatives minimized the total stream bank miles affected, the number of stream crossings, and the amount of potential road construction within designated aquatic habitat management units. Site-specific prescriptions have been developed to minimize the potential for impact to the stream spawning and rearing habitat where it was necessary to encroach into an AHMU. The site-specific aquatic habitat management unit prescriptions are noted on the individual timber harvest unit cards, in Appendix A-1 of the SEIS for Analysis Area 2.

Issue 4: Effects of timber harvest and related activities on wildlife habitat.

The baseline for comparison of alternatives is the No Action-Current Direction Alternative. The assumptions made for the socioeconomic issue also pertain to the following discussion on comparison of proposed timber harvest alternative effects on wildlife. Two points in time were used to evaluate the extent of potential wildlife effects. For comparison of the percent reduction of habitat capability, a point in time prior to data collection for the Tongass Land Management Plan was used (pre-1976). A point in time prior to any timber harvest was used to compare acres of emphasis species habitats affected.

The analysis in Chapter 4 of the SEIS estimates that the potential effects on the wildlife resources evaluated are varied. Based on current habitat capability projections, Analysis Area 2 has the potential to support over 4,500 deer, 190 brown bear, and over 300 pine martens.

The potential reduction of habitat capability by the proposed timber harvest alternatives ranges from 102 to 214 deer, from 6 to 33 brown bears, and 11 to 25 pine martens (Table AA2-2). The potential percent reduction by alternative ranges from 2.1 to 4.4 percent for deer, from 2.6 to 14.5 percent for brown bear, and 2.0 to 8.0 percent for the pine marten (Table AA2-2).

Table AA2-3 displays the acres of inventoried wildlife habitat that would be affected by the proposed timber harvest alternatives along with the percent of unaffected wildlife habitat. Though the acres affected vary from alternative to alternative, the amount of acres affected in respect to the total inventoried emphasis species habitat acres is small.

The Record of Decision for the 1986-90 Operating Period FEIS for the APC Long-Term Timber Sale prescribed approximately 88,500 acres to be managed in old-growth habitat condition for wildlife, of which 16,783 acres are in Analysis Area 2. The prescription was to remain in effect during the 1986-1990 operating period unless the stated management direction is modified after further NEPA analysis and public disclosure. The Supplement displays the effect to the old-growth habitat of new alternatives being considered in this NEPA assessment. Table AA2-4 displays the range of acres that would be affected and the percent of old-growth habitat condition remaining by proposed timber harvest alternative.

Timber harvest effects shown for the emphasis species and emphasis habitats are indicative of the effects on other wildlife species and their habitats in Analysis Area 2.

Issue 5: Distribution of harvest by volume class.

The acres proposed for harvest by volume class by harvest unit and by VCU for each alternative being evaluated in this Supplement are presented in Chapter 2 of the SEIS for Analysis

Table AA2-2

Projected Changes in Wildlife Habitat Capability Based on Models¹

	1	Alternative 2	3
Deer Habitat Capability			
Potential Reduction (individuals)	102 ²	150	214
Potential Reduction (percent)	2.1 ²	3.1	4.4
Brown Bear habitat Capability			
Potential Reduction (individuals)	6 ²	21	33
Potential Reduction (percent)	2.6 ²	9.0	14.2
Pine Marten Habitat Capability			
Potential Reduction (individuals)	9 ²	15	21
Potential Reduction (percent)	2.0 ²	3.4	4.8

SOURCE: Forest Service in consultation with ADF&G (SEIS Planning Record). See Consolidated Appendix, Volume II, C-3, theme response on data adequacy and model use.

¹ Values reflect changes from timber harvest on both National Forest and Native Corporation lands.

² Values reflect changes from timber harvest on Native Corporation land.

Area 2. Alternative 1 provides the baseline for comparing the action alternatives for this analysis area. Figure AA2-2 shows a comparison of the cumulative amount of harvest of each timber volume class including the proposed harvest for each alternative. None of the alternatives harvest a disproportionate percentage of high volume class stands.

Issue 6: Log Transfer Facility (LTF) location and potential environmental effects.

All alternatives propose to use existing log transfer facilities. Alternative 2 would use only the LTF at Eight Fathom Bight. Alternative 3 would use the log transfer facilities at Eight Fathom, Salt Lake Bay, and possibly the one at West Port Frederick. Alternative 3 proposes transfer of 72.4 MMBF over the Eight Fathom Bight LTF if the West Port Frederick LTF is not used. If the West Port Frederick LTF is used, 26.0 MMBF would be transferred over the Eight Fathom Bight LTF and 46.4 MMBF would be transferred over the West Port Frederick LTF. Alternative 3 also proposes transfer of 8.1 MMBF over the Salt Lake Bay LTF. Little, if any, negative impact to salmon, crab, or herring fisheries is projected.

Issue 7: Effects on resource values of high-interest areas.

High-interest areas were defined, based on the public response, in the 1986-90 FEIS (Forest Service 1986b, p. 1-20). In Analysis Area 2, Mud Bay (VCUs 192 and 193) was noted by SEACC as an area of concern for interim protection until the revision of TLMP.

None of the Alternatives propose to harvest timber in VCU 192. However, Alternatives 2 and 3 propose harvest in VCU 193. Alternative 2 proposes 23 units ranging in size from 13 to 110 acres for a total of 1,230 acres. Alternative 3 proposes 24 units ranging in size from 13 to 110 acres for a total of 1,298 acres.

Table AA2-3

Changes in Wildlife Habitat Due to Timber Harvest

	Alternative		
	1	2	3
Forested			
Proposed N.F. Harvest (acres) ¹	0	2,108	3,648
Projected N.C. Harvest (acres) ²	2,380	2,380	2,380
Percent Remaining	94	92	91
Deer Winter Range			
Proposed Harvest (acres)	0	193	193
Percent Remaining	94	93	93
Inland Wetland			
Proposed Harvest (acres)	0	0	0
Percent Remaining	98	98	98
Beach Fringe			
Proposed Harvest (acres)	0	0	0
Percent Remaining	92	92	92
Estuarine Fringe			
Proposed Harvest (acres)	0	0	0
Percent Remaining	91	91	91
Streamside Riparian			
Proposed Harvest (acres)	0	41	78
Percent Remaining	95	94	93

SOURCE: Tongass Land Management Plan and 1986-90 Administrative Record.

¹ National Forest land.² Native Corporation land.**Issue 8: Effects on visual, recreation, and wilderness resources.**

Visual Resources: Alternative 1 would have the least effect on visual resources. Of the action alternatives, Alternative 2 would have the least effect on the visual character of Analysis Area 2. Neither of the action alternatives would result in any visual effects on VCUs 191, 192, 194 through 197, 222, or 223. Under both action alternatives, road construction and harvest in VCUs 193 and 201 would result in changes in the visual resource environment.

Alternative 2 would transfer 45 percent of the acreage in VCU 193 and 41 percent of VCU 201 from a natural visual setting to one that appears modified by human activity. This alternative would deviate 2 percent from the assigned Visual Quality Objectives (VQOs) in 193 and 5 percent from the assigned VQOs in VCU 201.

Alternative 3 proposes the greatest change to the visual resource. Under Alternative 3, all the changes described for Alternative 2 would take place as well as visual changes in VCUs 198,

Table AA2-4

Changes in Old-Growth Habitat Due to Timber Harvest¹

	Alternative		
	1	2	3
Old-Growth Conditions			
Proposed Harvest (acres)	0	115	199
Percent Remaining	100	99.5	98.8

SOURCE: 1986-90 FEIS (Forest Service 1986b).

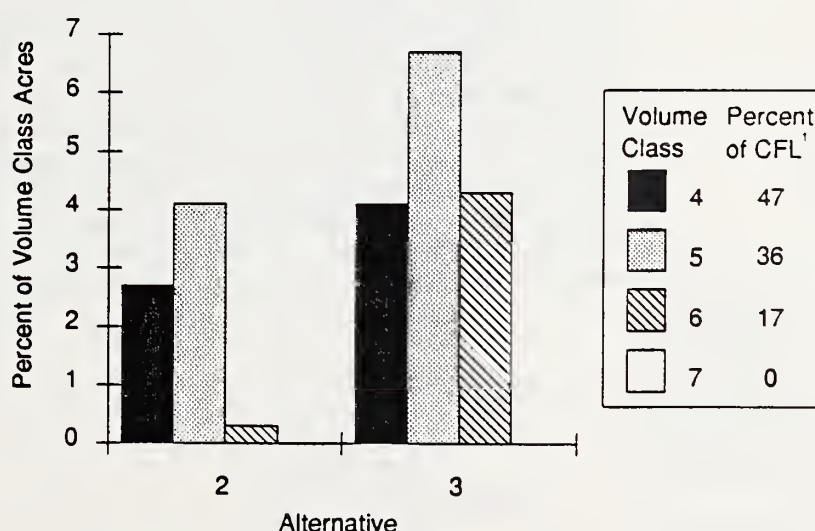
¹ Term refers to old growth on page 4-13, 1986-90 FEIS.

200, and 202. Visual modifications in VCUs 198 and 200 would result in little impact, if any. Alternative 3 would cause a shift of existing visual condition of 69 percent and 57 percent of VCUs 198 and 200 respectively. The assigned VQOs would be met in these VCUs. Alternative 3 would deviate from the assigned VQOs by 17 percent in VCU 202.

Recreation Resources: The No Action Alternative would result in the least impacts on recreation, followed by Alternative 2, and then Alternative 3. Both of the action alternatives propose harvest from VCUs 193 and 201, and result in similar shifts of acreage from primitive and semi-primitive nonmotorized recreation opportunity spectrum classes to semi-primitive motorized and roaded modified classes.

Figure AA2-2

Cumulative Percentage of Volume Classes, Including Proposed Harvest



SOURCE: Tongass Land Management Plan aerial photo points inventory, Forest Service Region 10, Juneau, AK.

¹ Value includes Volume Classes 4 through 7 only.

Analysis Area 2

Harvest activity proposed under both action alternatives would affect recreation sites in and around Mud Bay in VCU 193, including trails, anchorages, and two cabins. The alternatives are not expected to impact recreational boaters or kayakers in Neka Bay, although increased noise and human presence may change their experience during harvest operations.

In addition to the consequences that would occur under both action alternatives, Alternative 3 would affect VCUs 198, 200, and 202, where road construction and harvest activities have been proposed. More detailed information on visual, recreation and wilderness resources can be found in Chapter 4, Environmental Consequences of the SEIS for Analysis Area 2.

Issue 9: Effects of proposed activities on subsistence uses.

Some residents of Hoonah believe past and ongoing forest management activities in the Hoonah area are affecting their ability to harvest some subsistence resources. The Forest Service is sensitive to this concern and concludes in Chapter 3 of the SEIS that there is enough concern and justification that a finding of possible significant restriction to use was appropriate. The Forest Service held subsistence hearings following the release of the Draft SEIS. During the hearings, residents of subsistence communities had the opportunity to provide additional information concerning potential subsistence use impacts associated with the proposed timber harvest alternatives in Analysis Area 2. Comments received during the hearings were considered during the preparation of this FEIS. The ANILCA Section 810 Subsistence Evaluation in Chapter 4 of the SEIS projects that the Analysis Area 2 alternatives when combined with activities on adjacent private lands, would result in a significant possibility of a significant restriction of subsistence use of wildlife but not for fish and shellfish, or other food resources. The evaluation further found that enough is known about foreseeable, programmatic Forest Service activities and foreseeable other potential activities to project that the cumulative effects may possibly restrict subsistence uses.

Standards, Guidelines, and Mitigation Measures

Numerous mitigation, enhancement, and preventative measures that are used by the Forest Service are defined in several Forest Service Handbooks, the Alaska Regional Guide (Forest Service 1983a), and the Tongass Land Management Plan (Forest Service 1979, 1986d). Many of these guides were described in detail in the 1981-86 FEIS (Forest Service 1980a, Section III, Planning Alternatives and Recommendations) and in the 1986-90 FEIS (Forest Service 1986b, Subsection 2c). No new specific standards and guidelines were developed for this brief Operating Period. Specific mitigation measures, as applied to each individual unit, can be seen in the "As Planned" unit layout cards displayed in Appendix A-1 of the SEIS for Analysis Area 2. These Unit Cards are an important tool for implementing the project, as they list standards and guidelines and provide a mechanism for tracking the project implementation. Unit cards also contain an evaluation of the potential effectiveness for the mitigation measures being proposed.

Final Supplement to the Environmental Impact Statements
for the 1981-86 and 1986-90 Operating Periods

Alaska Pulp Corporation Long-Term Timber Sale Contract

**Analysis Area 3: Freshwater - Whitestone
Executive Summary**

U.S.D.A. - Forest Service
Alaska Region
Alaska

Lead Agency

Alaska Region
U.S.D.A. Forest Service
Federal Office Building
P.O. Box 21628
Juneau, Alaska 99802-1628

Responsible Official:

Michael A. Barton
Regional Forester
Alaska Region

**For Further Information
Contact:**

James W. Pierce
SEIS Team Leader

U.S.D.A. Forest Service
Alaska Region
Federal Building
P.O. Box 21628
Juneau, AK 99802-1628
(907) 586-8871

Gordon Anderson
Chatham Area
Team Leader
Tongass National Forest
Chatham Area
204 Siginaka Way
Sitka, AK 99835
(907) 747-6671



Analysis Area 3 Summary

In 1956, the Forest Service and Alaska Lumber and Pulp, now Alaska Pulp Corporation (APC), entered into a timber sale contract that terminates in 2011. Every five years, since implementation of the National Environmental Policy Act (NEPA), the Forest Service has prepared an environmental impact statement (EIS) for the succeeding Five-Year-Operating Plan.

The Federal District Court Case, *Tenakee Springs v. Courtright* challenged the adequacy of the 1981-86 Operating Plan FEIS under NEPA. In its 1987 decision, the Court found that the Forest Service would need to prepare a supplement to the 1981-86 FEIS to address issues raised by departures from the original 1981-86 Operating Plan. The departures have included the deletion or deferral of harvest units on lands selected for conveyance to Native corporations under the Alaska Native Claims Settlement Act (ANCSA) of 1971.

In addition to changing the Operating Plan, the Court identified three other issues requiring further analysis including: the need to consider a no-action alternative specific to the Upper Game Creek area of Chichagof Island, the need for more site-specific detail regarding environmental effects of alternative road and harvest configurations in the upper Game Creek area, and additional analysis in the Upper Game Creek area of the foreseeable cumulative impacts on the environment resulting from an expanding network of roads and harvest units.

The Forest Service decided to supplement both the 1981-86 and 1986-90 FEISs because both documents analyzed many of the same harvest areas and dealt with the same issues, and re-analysis of issues in the 1981-86 FEIS could affect the same issues in the 1986-90 FEIS. The Notice of Intent to produce the Supplemental EISs was published in the Federal Register October 15, 1987.

The EIS Supplement has been prepared in two phases. Phase I provided information and analysis of the issues, narrowing the focus from the whole APC Long-term Timber Sale area to four specific Analysis Areas (2, 3, 6, and 12) that should be further evaluated for timber harvest and road construction through the balance of the Plan period, ending December 31, 1990. The present Phase II document presents site-specific environmental impacts of the proposed roads and harvest units in northeastern Chichagof Island, designated as Analysis Area 3.

This document uses four main chapters to discuss the purpose and need for supplementing the previous EISs, the alternatives including the proposed action, the existing conditions of the affected environment, and the environmental consequences of the alternatives as well as measures to mitigate adverse effects. A number of appendices contain supporting materials.

On the basis of the Phase I and Phase II SEIS analysis, the Regional Forester must decide:

- Whether or not a) the changes in land ownership, b) deferrals, deletions, or changes of timber-harvest units, and c) the effects of the Alaska National Interest Lands Conservation Act (ANILCA) subsistence legislation warrant amending the Records of Decision for the 1981-86 or 1986-90 FEISs.
- Whether or not the contractual timber commitments between the date of publication of this document and December 31, 1990 (end of the 1986-90 Operating Period) should be met from Value Comparison Units (VCUs) that have some existing access roads and harvest units.

Analysis Area 3

- If the contractual commitments are not met from previously roaded VCUs, how much additional timber will be needed and from which VCUs the timber harvest will be scheduled.

The issues discussed in the 1981-86 and 1986-90 FEISs include:

1. The socioeconomic effects of logging and associated development on employment, business, populations, and quality of life.
2. The costs and benefits or trade-offs between environmental protection measures and the economics of the harvest activities.
3. The effects of timber harvest activities on fish habitat.
4. The effects of timber harvest activities on wildlife habitat.
5. The distribution of harvest by volume class.
6. The locations and environmental effects of log transfer facilities.
7. Maintaining resource values in high interest areas noted for fisheries, wildlife, recreation, or other values.
8. Effects on visual, recreation, and wilderness resources.

Other issues specified by the Court during the appeals process include consideration of a no-action alternative, consideration of effects on subsistence pursuant to Section 810 of ANILCA, and consideration of foreseeable long-term and cumulative effects of timber harvest. In 1988, a case (*Hanlon v. Barton*) filed in Federal District Court raised several issues regarding the effects of timber harvest near Hoonah on subsistence users. The Court recognized the merit of some claims which have implications for Analysis Area 3: consideration of a no further harvest alternative and consideration of "carryover" logging and road construction.

To address the issues and comply with NEPA regulations while meeting the APC Contract requirements, the Forest Service developed six alternatives for the Analysis Area 3 SEIS. Alternative 1, the No Action-Current Direction option, would permit the activities currently authorized by the Court to continue in nondeferred VCUs. This alternative would harvest 63.3 MMBF and construct about 21 miles of road in 1989. All of the alternatives will use an LTF at Seal Creek and might use an LTF at False Bay. During 1990, Alternative 1 would harvest 42.7 MMBF and build about 19 miles of road. A No Further Harvest option, Alternative 2, would involve completing all of the APC 1989 operating plan harvest units and roads but would defer any additional units and roads pending another environmental analysis.

Alternatives 3 through 6 propose to harvest additional timber volume and build more roads; their totals include the volume and road length proposed in Alternative 1. Alternative 3 proposes to harvest 139.6 MMBF and construct 51 miles of system road. This alternative would use the Kennel Creek logging camp and LTF along with the Long Island LTF and/or a temporary LTF at False Bay. Alternative 4 would harvest 118.3 MMBF and construct 52 miles of road. This alternative would use the LTF at Long Island or False Bay along with that at Kennel Creek. Alternative 5 proposes to harvest 116.8 MMBF, construct 55 miles of new road, and use the Long Island and/or False Bay LTFs along with the Kennel Creek LTF. Alternative 6 proposes to harvest 99.5 MMBF, construct 39 miles of new road, and use the Long Island, Seal Creek, False Bay, and Kennel Creek LTFs.

None of the alternatives would locate roads or units on extreme hazard soils, reducing the potential to adversely impact soil productivity, mass wasting, and soil loss. The alternatives would alter noncommercial and understory species composition, affecting from about 6,000 acres (Alternative 6) to about 8,000 acres (Alternative 3). Precommercial thinning would be scheduled to accelerate both understory and remaining conifer growth rates for longer periods of time.

The alternatives would not impact much beach fringe; most would affect 1 percent or less with Alternative 6 affecting 3 percent. None of the alternatives would affect estuarine fringe, eagle sites, or inland wetlands. The alternatives would impact between 1 percent (Alternative 2, 4, and 5) and 3 percent (Alternative 6) of existing deer winter range. Likewise, the alternatives would impact small areas of streamside-riparian zones, ranging from under 0.5 percent (Alternatives 3, 4, and 5) to 2 percent (Alternative 1). Potential project effects on projected deer, brown bear, and pine marten habitat capability range from slight to substantial, particularly when project effects are combined with past effects and are carried into the foreseeable future.

Each of the action alternatives would encroach into some Aquatic Habitat Management Units (AHMU), ranging in Class I habitat from 2.3 (Alternative 2) to 8.5 (Alternative 3) miles of both sides of a creek. For Class II habitat, the figures range from 1.7 (Alternative 2) to 9.8 (Alternative 3) miles of one side of a creek, and from 1.5 (Alternative 2) to 6.5 (Alternative 3) miles of both sides of a creek.

The action alternatives would require AHMU protection measures for roads ranging from 0.3 (Alternative 2) to 2.4 (Alternative 4) miles. Each of the alternatives has little potential for changing stream flows, and the application of standards and guidelines to mitigate soils impacts is expected to result in only minor amounts of stream sediment.

Each of the alternatives has a little potential for impacting marine fisheries outside the sill, with little impact on salmon, herring, or crab expected.

None of the alternatives would affect land status. All of the action alternatives shift the recreation opportunities of some acres from Primitive I and Semi-primitive, Non-motorized to Roaded Natural or Roaded Modified where harvest activities take place.

The action alternatives fail to meet fully assigned visual quality objectives in two to three VCUs. Few impacts to cultural resources are expected. The Forest Service will conduct the inventory, evaluation, and mitigation of cultural resources sites according to a research design approved at implementation to avoid adverse impacts under any of the alternatives.

A Subsistence Evaluation was conducted pursuant to ANILCA Section 810, including public hearings held in subsistence communities in the vicinity of Analysis Area 3. It found that:

- A. The potential foreseeable effects from Alternatives 1 through 6 of the proposed project in Analysis Area 3 present a no, or only slight, significant possibility of a significant restriction of subsistence uses of fish, shellfish, timber and other foods.
- B. The potential effects from Alternatives 3 through 6 of the proposed project in Analysis Area 3 present a significant possibility of a significant restriction of subsistence uses of wildlife.

The Final SEIS Findings further project subsistence use may be significantly restricted in Analysis Area 3 from the results of implementing long-term management direction in the Tongass Land Management Plan, from future actions on other surrounding lands, and from adding those potential effects to the foreseeable effects of the proposed action.

The alternatives were found to be similar in evaluating most of the issues. Most of the issues concern environmental impacts, including effects on fish and wildlife habitat and the marine environment, visual resources, recreation, wilderness, and high interest areas, which were concluded to be minimal. The analysis found that none of the alternatives would harvest a significant amount or percentage of high volume stands.

Chapter 4 of the SEIS for Analysis Area 3 identifies numerous measures applied to mitigate the adverse impacts of timber harvest activities. These measures are used to protect or enhance fish and wildlife habitat, protect aesthetic values, prevent landslides and windthrow, and improve timber stands. Various Forest Service documents have discussed the standards, guidelines, monitoring, and mitigation measures in detail. Their purpose is to foresee and

Analysis Area 3

avoid or prevent potential problems in the planning phases of forest management. The potential effectiveness of proposed mitigation measures is also discussed.

Mitigation measures identified in Chapter 4 of the SEIS include, for example, creating irregular unit boundaries on visually sensitive units, using log yarding suspension requirements to protect sensitive soils, and providing signs to direct recreation traffic along the trails affected by harvest activities. Other mitigation measures consist of monitoring recreation use to determine the need for access restrictions, using streambank protection measures to maintain stable stream channels, using second-growth management techniques for areas of harvested deer winter range, and avoiding known cultural resources sites.

The alternatives differ considerably in economic benefits. The No Action-Current Direction Alternative 1 would support about 538 jobs in the 1989 harvest season and about 363 jobs in 1990. Although the No Further Harvest Alternative 2 would support the same 538 jobs in 1989, no additional jobs would be maintained in subsequent years without further NEPA Analysis.

Alternatives 3 through 6 would add additional volume to the 1990 volume of Alternative 1. This volume can be harvested between now and 1990 if APC increases its present logging capacity. At the present rate of harvest, this volume would provide carryover that would support jobs in 1991. Whether or not APC increases its current logging capacity will depend upon market conditions. Alternative 3 would provide the most volume, which would provide for about 1,032 jobs; Alternative 4 would provide about 825 jobs; Alternative 5 would provide about 824 jobs, and Alternative 6, with the least volume, would provide about 672.

Alternative 1 would not meet the minimum volume projected for this area in the Phase I DEIS. It would require the Forest Service to make up the additional volume in other analysis areas, resulting in a possible breach of the contract if the volume could not be made up. This alternative is considered moderate in effectiveness in dealing with subsistence issues and brown bear population viability. It is considered moderate in effectiveness to implement TLMP guidelines for LUD III and IV VCUs.

Alternative 2 has the highest risk of causing the Forest Service to breach its contract with APC, because it fails to meet the minimum volume requirement projected in the Phase I DEIS and provides for less volume than the current situation. The Forest Service would have to make up 100 to 300 MMBF to meet contract obligations. This alternative is considered the most effective in responding to concerns over subsistence and brown bear viability, but is considered low in effectiveness to implement TLMP guidelines for LUD III and IV VCUs.

In proposing the highest level of timber harvest, Alternative 3 is considered the most effective at meeting the contract volume needs and the harvest level set in the Phase I DEIS. It is considered low in effectiveness at responding to concerns over subsistence and brown bear viability unless the proposed mitigation measures are adopted. This alternative would be highly effective in maintaining community stability in Hoonah and current employment levels for the logging contractors in the area and for the mills in Sitka and Wrangell. It is considered high in effectiveness to implement TLMP guidelines for LUD III and IV VCUs.

Alternative 4 barely meets the minimum volume projected in the Phase I DEIS. It is considered lowest at responding to concerns over subsistence and brown bear viability. This alternative would be moderately effective at maintaining community stability in Hoonah and current employment levels for logging contractors and the mills. It is considered moderate in effectiveness to implement TLMP guidelines for LUD III and IV VCUs.

Alternative 5 also barely meets the minimum volume projected in the Phase I DEIS. It would be moderate in effectiveness in responding to subsistence and brown bear viability concerns. This alternative would be moderately effective at maintaining community stability in Hoonah and current employment levels for the logging contractors and the mills. It is considered moderate in effectiveness to implement TLMP guidelines for LUD III and IV VCUs.

Alternative 6 would harvest the lowest volume of any of the action alternatives and would be moderate to high in its effectiveness at responding to concerns about subsistence and brown bear viability. This alternative would be moderately effective at maintaining community stability in Hoonah and current employment levels for the logging contractors and the mills. It is considered moderate in effectiveness to implement TLMP guidelines for LUD III and IV VCU's.

The Chatham Area management team evaluated the benefits and impacts of each alternative and the issues to recommend the preferred alternative. Alternative 3 is tentatively identified as the preferred alternative, pending further consideration in the Record of Decision.

Comparison of Alternatives

The comparison of alternatives draws together the conclusions from the materials presented throughout the SEIS and summarizes the results of the analysis. It also presents the rationale leading to the identification of the preferred alternative. The following section compares the environmental impacts of the alternatives on the basis of the detailed analysis given in Chapter 4 of the SEIS for Analysis Area 3. The discussion focuses on the issues, presenting a perspective on their perceived importance.

Impact Comparison

Table AA3-1, Comparison of Environmental Impacts, provides a summary comparison of the impacts anticipated from each of the alternatives. This table summarizes information found in Chapter 4, Environmental Consequences of the SEIS for Analysis Area 3. Figure AA3-1 shows a comparison of road construction for all alternatives as a basis for understanding some of the comparisons in Table AA3-1.

Issue Comparison

The following paragraphs compare the alternatives in terms of the issues listed above and as described in Chapter 1 of the SEIS.

Issue 1: Socioeconomic effects of timber harvesting and associated development

Harvest of the APC long-term sale volume in Analysis Area 3 averaged 30 million board feet (MMBF) per year in 1987 and 1988. This harvest supported approximately 255 direct and indirect jobs per year. The baseline for the comparison of alternatives is the Current Direction - No Action Alternative, which in Analysis Area 3 is Alternative 1. This alternative would build on the existing socioeconomic base. The 1989 harvest season plan includes the harvest of 63.3 MMBF, which will support about 538 direct and indirect jobs. The 1990 harvest season plan would include harvest of 29.9 MMBF, enough to support about 254 direct and indirect jobs.

Alternative 2, the No Further Harvest Alternative, would provide the same 538 direct and indirect jobs as Alternative 1 in 1989, but none thereafter without further NEPA analysis. The socioeconomic effects after the end of the 1989 harvest season would be severe. The No Further Harvest Alternative could result in the government breaching the terms of the APC Long-Term Timber Sale Contract. Unilateral breach and possible termination of the long-term contracts would likely result in a large damage claim, which the Congressional Research Service estimates might be as high as \$53.7 million for the APC Contract.

Alternatives 3 through 6 would add additional volume to the 1990 volume of Alternative 1. Alternative 3 would provide the most volume (78.7 MMBF). This amount of volume would provide for approximately 672 additional direct and indirect jobs in 1990, or if one assumes that the same volume would be harvested in 1990 as in 1989, 58.1 MMBF would be carried over and would provide about 494 jobs in 1991. Alternative 4 would provide about 462 additional direct and indirect jobs in 1990 (or would carry over about 287 jobs to 1991 if the actual 1990 harvest was the same as the 1989 harvest). Alternative 5 would provide about 461

Analysis Area 3

Table AA3-1

Summary Comparison of Alternatives¹

	Alternative 1 No Action/Current Direction	Alternative 2 No Further Harvest
Soils	No units or roads would be located on extreme hazard soils. This greatly reduces the potential to adversely impact soil productivity, mass wasting, and soil loss.	
Vegetation	Tree and understory species composition would be slightly altered on 4,553 acres. Pre-commercial thinning would be scheduled to accelerate both understory and conifer growth rates.	Tree and understory species composition would be slightly altered on 2,704 acres. Pre-commercial thinning would be scheduled to accelerate both understory and conifer growth rates.
Wildlife		
<i>Beach Fringe</i>	84 acres of beach fringe impacted. Beach fringe remaining would be 93 percent.	20 acres of beach fringe impacted. Beach fringe remaining would be about the same as under Alternative 1.
<i>Estuarine Fringe</i>	Estuarine fringe would not be impacted.	
<i>Eagle Sites</i>	No known eagle nest sites would be impacted.	No known eagle nest sites would be impacted.
<i>Deer Winter Range</i>	Approximately 335 acres or 89 percent of existing deer winter range (DWR) remaining. This is within TLMP Guidelines of 4 percent LUD III and 5 percent LUD IV.	Approximately 87 acres or 91 percent of existing deer winter range (DWR) remaining. This is within TLMP Guidelines.
<i>Inland Wetlands</i>	Inland wetlands would not be impacted.	
<i>Streamside/Riparian</i>	Total of 179 acres or 91 percent of streamside/riparian acres remaining. TLMP calls for 20 percent in LUD III or 10 percent in LUD IV to be retained. Impacts are within TLMP Guidelines.	Total of 97 acres or 92 percent of streamside/riparian acres remaining. Impacts are within TLMP Guidelines.

(Table Continued)

Alternative 3

Alternative 4

Alternative 5

Alternative 6

Impacts would be the same for all action alternatives.

Tree and understory species composition would be slightly altered on 7,838 acres. Pre-commercial thinning would be scheduled to accelerate both understory and conifer growth rates.

Tree and understory species composition would be slightly altered on 7,075 acres. Pre-commercial thinning would be scheduled to accelerate both understory and conifer growth rates.

Tree and understory species composition would be slightly altered on 6,972 acres. Pre-commercial thinning would be scheduled to accelerate both understory and conifer growth rates.

Tree and understory species composition would be slightly altered on 6,030 acres. Pre-commercial thinning would be scheduled to accelerate both understory and conifer growth rates.

107 acres of beach fringe impacted. Beach fringe remaining would be 92 percent.

84 acres of beach fringe impacted. Beach fringe remaining would be 93 percent.

84 acres of beach fringe impacted. Beach fringe remaining would be 93 percent.

317 acres of beach fringe impacted. Beach fringe remaining would be 89 percent.

Estuarine fringe would not be further impacted by any of the alternatives.

No known eagle nest sites would be impacted by any of the alternatives.

Approximately 591 acres or 88 percent of existing deer winter range (DWR) remaining. This is within TLMP Guidelines.

Approximately 389 acres or 89 percent of existing deer winter range (DWR) remaining. This is within TLMP Guidelines.

Approximately 433 acres or 88 percent of existing deer winter range (DWR) remaining. This is within TLMP Guidelines.

Greatest impact on DWR. Approximately 816 acres or 86 percent of existing deer winter range (DWR) remaining. This is within TLMP Guidelines.

Inland wetlands would not be impacted.

Total of 192 acres or 90 percent of streamside/riparian acres remaining. Impacts are within TLMP Guidelines.

Total of 182 acres or 91 percent of streamside/riparian acres remaining. Impacts are within TLMP Guidelines.

Total of 192 acres or 90 percent of streamside/riparian acres remaining. Impacts are within TLMP Guidelines.

Total of 216 acres or 90 percent of streamside/riparian acres remaining. Impacts are within TLMP Guidelines.

(Table Continued)

Analysis Area 3

Table AA3-1 (Continued)

Summary Comparison of Alternatives¹

	Alternative 1 No Action/Current Direction	Alternative 2 No Further Harvest
Fish Habitat	Potentially harvests 4.4 percent of Class I or 2.5 percent of Class II habitat in AHMU to one side of creek, and 2.6 percent of Class I and 1.9 percent of Class II to both sides of creek.	Potentially harvests 2.3 percent of Class I or 1.7 percent of Class II habitat in AHMU to one side of creek, and .9 percent of Class I and 1.5 percent of Class II to both sides of creek.
<i>Aquatic Habitat Management Units</i>		
<i>Roads and Crossings</i>	About 1.4 miles of road would require AHMU protection measures.	About .3 miles of road would require AHMU protection measures.
<i>Stream Flow</i>	Little potential for change in stream flows.	
<i>Sediment</i>	Application of standards and guidelines is expected to minimize impacts to soils.	
Marine Environment	Low potential for impacting marine fisheries outside the sill. Little impact on salmon or herring or crab.	
Land Status	No change	No change
Recreation	AA3 would shift from semi-primitive nonmotorized to roaded natural or roaded modified in VCUs where harvest activities are taking place.	
Visual	Eleven VCUs would be entered and eight meet assigned VQOs. VCUs 209, 218, and 219 would not fully meet the assigned VQOs.	Six VCUs would be entered and four meet assigned VQOs. VCUs 209 and 218 would not fully meet the assigned VQOs.
Cultural Resources	No impact to known cultural resources.	
Socioeconomics	Harvest volume would maintain 538 jobs and \$12.5 million in salaries. 5 known outfitters use the area. No measurable change is expected in tourism under this alternative.	Harvest volume would maintain 363 jobs and \$8.4 million in salaries. No measurable change is expected in tourism under this alternative.

(Table Continued)

Analysis Area 3

Alternative 3	Alternative 4	Alternative 5	Alternative 6
Potentially harvests 8.5 percent of Class I or 9.8 percent of Class II habitat in AHMU to one side of creek, and 8.8 percent of Class I and 6.5 percent of Class II to both sides of creek.	Potentially harvests 5.0 percent of Class I or 3.1 percent of Class II habitat in AHMU to one side of creek, and 2.5 percent of Class I and 1.9 percent of Class II to both sides of creek.	Potentially harvests 4.4 percent of Class I or 3.4 percent of Class II habitat in AHMU to one side of creek, and 2.9 percent of Class I and 1.9 percent of Class II to both sides of creek.	Potentially harvests 8.4 percent of Class I or 3.7 percent of Class II habitat in AHMU to one side of creek, and 2.9 percent of Class I and 2.3 percent of Class II to both sides of creek.
About 2.1 miles of road would require AHMU protection measures.	About 2.4 miles of road would require AHMU protection measures.	About 2.3 miles of road would require AHMU protection measures.	About 1.8 miles of road would require AHMU protection measures.
Little potential for change in stream flows.			
Application of standards and guidelines is expected to minimize impacts to soils.			
Low potential for impacting marine fisheries outside the sill. Little impact on salmon or herring or crab.			
No further change	No further change	No further change	No further change
Analysis Area 3 would shift from semi-primitive nonmotorized to roaded natural or roaded modified in VCUs where harvest activities are taking place.			
Eight VCUs would be entered and six meet assigned VQOs. VCUs 209 and 218 would not fully meet the assigned VQOs.	Nine VCUs would be entered and six meet assigned VQOs. VCUs 209, 218, and 219 would not fully meet the assigned VQOs.	Nine VCUs would be entered and six meet assigned VQOs. VCUs 209, 218, and 219 would not fully meet the assigned VQOs.	Six VCUs would be entered and four meet assigned VQOs. VCUs 213 and 219 would not fully meet the assigned VQOs.
No impact to known cultural resources.			
Harvest volume would maintain 1032 jobs and \$23.9 million in salaries.	Harvest volume would maintain 825 jobs and \$19.2 million in salaries.	Harvest volume would maintain 824 jobs and \$19.1 million in salaries.	Harvest volume would maintain 672 jobs and \$15.6 million in salaries.
(Table Continued)			

Analysis Area 3

Table AA3-1 (Continued)

Summary Comparison of Alternatives¹

	Alternative 1 No Action/Current Direction	Alternative 2 No Further Harvest
Subsistence	Significant possibility of a significant restriction of subsistence use of wildlife.	
Timber/Firewood	Free use policies not affected.	
Reasonably Foreseeable, Long-Term, and Cumulative Effects	Minimal effects on all resources evaluated, except as described under subsistence.	

¹ A detailed comparison of impacts is found in Chapter 4 of the SEIS for Analysis Area 3.

Analysis Area 3

Alternative 3

Alternative 4

Alternative 5

Alternative 6

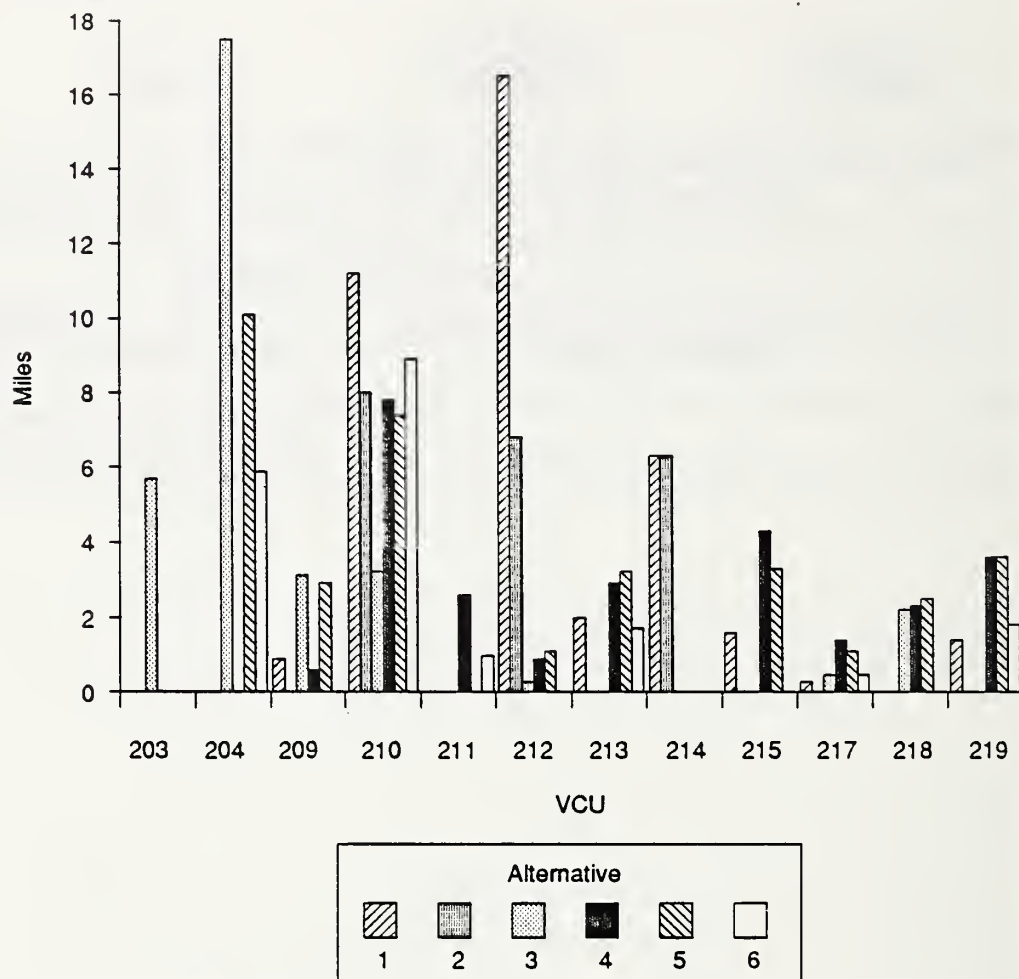
Significant possibility of a significant restriction of subsistence use of wildlife.

Free use policies not affected.

Minimal effects on all resources evaluated, except as described under subsistence.

Figure AA3-1

Road Construction Required for Each Alternative in Each VCU



SOURCE: SEIS Planning Record.

additional direct and indirect jobs in 1990 (or would carry over about 286 jobs as assumed above). Alternative 6, which provides the least volume, would provide for approximately 306 additional direct and indirect jobs in 1990 (or would carry over about 110 jobs as assumed above). Refer to the Economic Comparisons section of Chapter 2, SEIS for Analysis Area 3, for further discussion.

Issue 2: Costs and benefits associated with implementing the alternatives.

The No Action-Current Direction Alternative is the baseline for comparing the alternatives with respect to this issue. The cost per value analysis presented in the Economic Comparison section of the SEIS for Analysis Area 3 describes the dollar values maintained by each of the alternatives being evaluated. The No Further Harvest Alternative could impact the cost of operation at the APC Pulp Mill if the Forest Service were unable to make up the additional volume in another area. A volume disruption of this magnitude could cause the pulp mill to experience temporary shutdowns. The cost of a temporary shutdown is estimated by APC to be \$500,000, plus \$4,800 for every day of shutdown (Appendix A-4, Draft SEIS).

Issue 3: Effects of timber harvest and related activities on fisheries habitat.

The baseline for comparison of alternatives is the No Action-Current Direction Alternative. The assumptions made for the socioeconomic issue also pertain to the comparison of the effects of the proposed timber harvest alternatives on fisheries.

The evaluation of the proposed timber harvest alternatives for Analysis Area 3 presented in Chapter 4 of the SEIS for Analysis Area 3 indicates the potential effects on the fisheries resources evaluated are minimal and insignificant. The Alaska Region Aquatic Habitat Management Unit (AHMU) Guidelines were generally adopted in the development of the timber harvest alternatives in order to minimize the potential for impact to the valuable salmon and trout fisheries in Analysis Area 3. The adherence to the AHMU Guidelines in the formation of alternatives minimized the total stream bank miles affected, the number of stream crossings, and the amount of potential road construction within designated aquatic habitat management units. Site-specific prescriptions have been developed to minimize the potential for impact to the spawning and rearing habitat where it was necessary to encroach into an AHMU. The site-specific aquatic habitat management unit prescriptions are noted on the individual timber harvest Unit Cards, which are located in Appendix A-1 of the SEIS for Analysis Area 3.

Issue 4: Effects of timber harvest and related activities on wildlife habitat.

The baseline for comparison of alternatives is the No Action-Current Direction Alternative. The assumptions made for the socioeconomic issue also pertain to the following comparison of proposed timber harvest alternative effects on wildlife. Two points in time were used to evaluate the extent of potential wildlife effects. A point prior to timber harvesting in the area was used when comparing the percent reduction of habitat capability. A point in time after scheduled timber harvest in the SEIS was used to determine total impacts to emphasis habitat.

The evaluation presented in Chapter 4 of the SEIS for Analysis Area 3 and summarized here shows the potential effects on the wildlife resources evaluated to be minimal. Based on current habitat capability projections, Analysis Area 3 has the potential to support over 5,300 deer, 140 brown bears, and over 550 pine martens.

The potential reduction of habitat capability by the proposed timber harvest alternatives range from 81 to 190 deer, 6 to 14 brown bears, and 9 to 21 pine martens (Table AA3-2). The potential percent reduction by alternative ranges from 1.4 to 3.3 percent for deer, 2.3 to 5.4 percent for brown bears, and 1.8 to 3.5 percent for pine martens (Table AA3-2). The differences in habitat capability between the no-action and the action alternatives is so slight that it would be difficult to measure if an attempt was made to verify those differences in the field.

Table AA3-3 displays the acres of inventoried wildlife habitat that would be affected by the proposed timber harvest alternatives and it displays the percent of unaffected wildlife habitat. Though the acres affected vary from alternative to alternative, the amount of acres affected with respect to the total inventoried emphasis species habitat acres is small.

The Record of Decision for the 1986-90 Operating Period EIS for the APC Long-Term Timber Sale prescribed approximately 88,500 acres to be managed in Old-Growth Habitat Condition for wildlife, of which 14,396 acres are in Analysis Area 3. The prescription was to remain in effect during the 1986-1990 operating period unless the stated management direction is modified after further NEPA analysis and public disclosure. The Supplement displays the effects on the Old Growth Habitat of new alternatives being considered in this NEPA assessment. Table AA3-4 displays the range of acres that would be affected and the percent of Old-Growth Habitat Condition remaining by proposed timber harvest alternative.

Timber harvest effects shown for the emphasis species and emphasis habitats are indicative of the effects on other wildlife species and their habitats in Analysis Area 3.

Analysis Area 3

Table AA3-2

Projected Changes in Wildlife Habitat Capability Based on Models¹

	Alternative					
	1	2	3	4	5	6
Deer Habitat Capability						
Potential Reduction (individuals)	123	81	190	186	188	171
Potential Reduction (percent)	2.1	1.4	3.3	3.2	3.3	3.0
Brown Bear Habitat Capability						
Potential Reduction (individuals)	12	6	14	11	12	8
Potential Reduction (percent)	4.6	2.3	5.4	4.2	4.6	3.1
Pine Marten Habitat Capability						
Potential Reduction (individuals)	16	11	11	21	21	9
Potential Reduction (percent)	2.7	1.8	1.8	3.5	3.5	1.5

SOURCE: Forest Service in consultation with ADF&G (SEIS Planning Record) - See Consolidated Appendix, Volume II, C-3, theme response on data adequacy and models used.

¹ National Forest land.

Issue 5: Distribution of harvest by volume class.

Table AA3-5 summarizes the acres by volume class for each alternative being evaluated in this Supplement. Alternative 1, the No Action-Current Direction Alternative, provides the baseline for comparing the other alternatives for this analysis area. Figure AA6-2 shows a comparison of the cumulative amount of each timber volume class that would be harvested under each alternative.

None of the alternatives would harvest a significant amount of the high volume stands found in the analysis area, nor do they harvest a disproportionate percentage of high volume class stands.

Issue 6: Log Transfer Facility (LTF) location and potential environmental effects.

All alternatives propose to use LTFs with existing COE permits and State of Alaska tideland leases. All alternatives would use the LTFs at Kennel Creek and Long Island. Environmental analyses have been completed for two additional LTFs. These LTFs located at Seal Creek and False Bay have been constructed at the time of the FEIS. Alternative 1 will use the LTF at Seal Creek. All alternatives may use the LTF at False Bay.

Issue 7: Effects on resource values of high-interest areas.

High-interest areas were defined based on the public response to the 1986-90 DEIS (p.1-20). In Analysis Area 3, Pavlof, VCU 218 was noted by ADF&G for its resident fisheries and wildlife values. Respondents also named Tenakee Inlet, Freshwater Bay Road, and Hoonah-Tenakee Tie Road as areas of concern.

All alternatives would harvest timber in VCU 218. All alternatives except Alternative 2 propose harvest in VCU 219, this is the only harvest proposed in the Tenakee Inlet area of Analysis Area 3.

Analysis Area 3

None of the alternatives propose connection of the Hoonah-Tenakee Tie Road. Alternatives 1, 2, and 4 would further defer entry into the Upper Game Creek portion of VCU 204. Alternative 3, which was patterned after the 1986-90 ROD was modified in VCUs 204 and 216 to defer 3 units, a stream crossing and a 2.7 mile road segment at the end of the Upper Game Creek Road.

Issue 8: Effects on visual, recreation, and wilderness resources.

Visual Resources: Of the 18 VCUs in Analysis Area 3, 11 would be entered by Alternative 1. Eight VCUs would meet the assigned VQOs and 3 would have portions that would not fully meet the assigned VQOs. VCUs 204, 208, 210, 212, 213, 214, 215, and 217 would fully meet the assigned VQOs. Under Alternative 1, portions of VCUs 209, 218, and 219 would not fully meet the assigned VQOs.

Alternative 2 would enter 6 VCUs in Analysis Area 3. Four VCUs would meet the assigned VQOs and 2 would have portions that would not fully meet the assigned VQOs. VCUs 210,

Table AA3-3

Changes in Wildlife Habitat Due to Timber Harvest¹

	Alternative					
	1	2	3	4	5	6
Forested						
Proposed Harvest (acres)	4,553	2,704	7,839	7,075	6,972	6,030
Percent Remaining	92	94	93	94	94	94
Deer Winter Range						
Proposed Harvest (acres)	335	87	256	210	98	426
Percent Remaining	89	91	90	90	90	88
Inland Wetland						
Proposed Harvest (acres)	0	0	0	0	0	0
Percent Remaining	90	90	90	90	90	90
Beach Fringe						
Proposed Harvest (acres)	89	20	23	0	0	223
Percent Remaining	92	93	93	94	94	90
Estuarine Fringe						
Proposed Harvest (acres)	0	0	0	0	0	0
Percent Remaining	98	98	98	98	98	98
Streamside Riparian						
Proposed Harvest (acres)	179	98	10	3	13	37
Percent Remaining	91	92	93	93	93	92

SOURCE: 1986-90 FEIS (Forest Service 1986b) and SEIS Planning Record.

¹ National Forest land.

Table AA3-4

Changes in Old-Growth Habitat Prescriptions Due to Timber Harvest¹

	Alternative					
	1	2	3	4	5	6
Old-Growth Conditions						
Proposed Harvest (acres)	0	0	73	296	153	548
Percent Remaining	100	100	99	98	99	96

SOURCE: 1986-90 FEIS (Forest Service 1986b).

¹ National Forest land.

212, 214, and 215 would fully meet the assigned VQOs. In VCUs 209 and 218, the visual impacts would appear as moderate to major disturbances. In both VCUs, the impacts would be similar to Alternative 1.

Eight VCUs would be entered by Alternative 3. Of those 8, 6 VCUs would fully meet the assigned VQOs and 2 would not fully meet the assigned VQOs. VCUs 203, 204, 208, 210, 212, and 217 would fully meet the assigned VQOs. In VCUs 209 and 218 the visual impacts would appear as moderate disturbances.

A total of 9 VCUs would be entered in Alternative 4. Six VCUs would meet the assigned VQOs and 3 would have portions that would not fully meet the assigned VQOs. VCUs 210, 211, 212, 213, 215, and 217 would fully meet the assigned VQOs. Under Alternative 4, portions of 3 VCUs (209, 218, and 219) would not fully meet assigned VQOs.

As with Alternative 4, a total of 9 VCUs would be entered in Alternative 5. Six VCUs would meet the assigned VQOs and 3 would have portions that would not fully meet the assigned VQOs. VCUs 204, 210, 212, 213, 215, and 217 would fully meet the assigned VQOs. Under Alternative 5, portions of 3 VCUs (209, 218, and 219) would not fully meet assigned VQOs.

Table AA3-5

Acres Proposed for Harvest

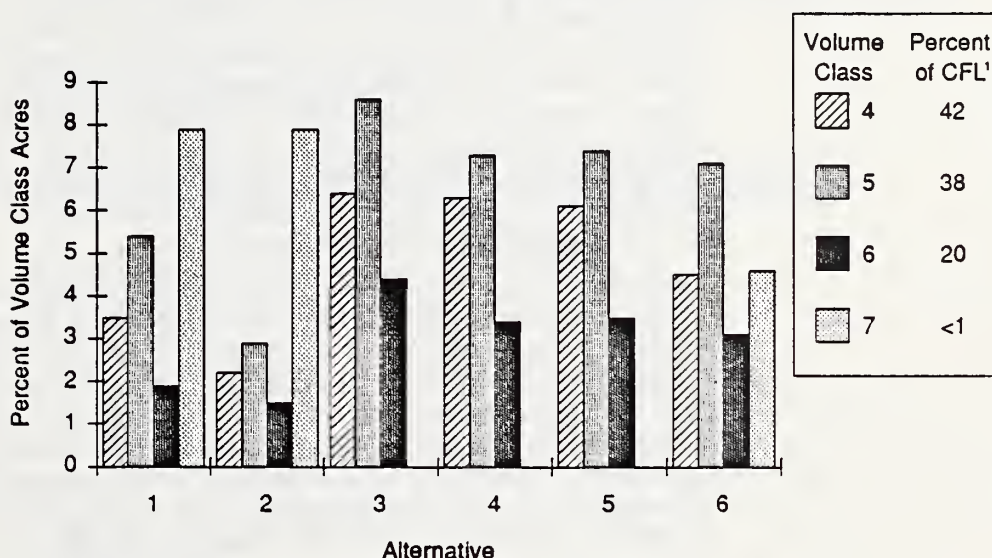
Volume Class ¹	Alternative					
	1	2	3	4	5	6
4	1,714	1,048	1,341	1,323	1,215	456
5	2,377	1,279	1,397	857	849	741
6	436	351	547	342	355	265
7	26	26	0	0	0	15
Total	4,553	2,704	3,285	2,522	2,419	1,477

SOURCE: SEIS Planning Record, Chatham Area Supervisor's Office, Sitka, AK.

¹ Volume Classes 1 through 3 (not presented) contain less than 8 MBF/acre; Volume Class 4 contains 8-20 MBF/acre; Volume Class 5 contains 20-30 MBF/acre; Volume Class 6 contains 30-50 MBF/acre; and Volume Class 7 contains 50 or more MBF/acre.

Figure AA3-2

Cumulative Percentage of Volume Classes, Including Proposed for Harvest



Source: Tongass Land Management Plan aerial photo points inventory, Forest Service Region 10, Juneau, AK.

¹ Value includes Volume Classes 4 through 7 only.

Alternative 6 would enter 6 VCUs. Of these 6 VCUs, 4 would meet the assigned VQOs and 2 would have portions that would not fully meet the assigned VQOs. VCUs 204, 210, 211, and 217 would fully meet the assigned VQO. Under Alternative 6, portions of 2 VCUs 213 and 219, would not fully meet assigned VQOs.

Recreation Resources: Alternative 2, the No Further Harvest Alternative, would result in the least impacts on recreation. Since Alternative 1 is added to all of the action alternatives, its impacts on recreation, a change in recreation opportunity spectrum (ROS) of 28,629 acres in 10 VCUs, would be added to those displayed for Alternatives 3 through 6. Of the action alternatives, Alternative 6, because of its lower harvest level, would have the least impact on the Recreation Opportunity Spectrum. Under Alternative 2, the ROS designations would change on 3,618 acres in 7 VCUs. Alternative 3 would have the greatest impacts, affecting the ROS of 38,382 acres over 12 VCUs. Alternative 4 would affect 16,933 acres in ten VCUs, and Alternative 5 would affect 10,180 acres in 8 VCUs.

The above changes in ROS class are based on all roads in all alternatives remaining open. With road closures used as a mitigation measure, roaded recreation opportunities would decrease relative to the increase in miles of road closed. Alternative 2, having the lowest miles of road construction, would have the least roaded recreation opportunities, whereas Alternative 3, which proposes the most miles of road construction has most roaded recreation opportunities. The converse is also true, in that Alternative 3 having the highest number of road miles would offer the least primitive recreation opportunities, and Alternative 2 would offer the most.

Analysis Area 3

Appeal Issue: Effects of proposed activities on subsistence uses

Chapter 4 of the Draft SEIS evaluated the potential site-specific effects on subsistence use that could result from implementing any of the proposed timber harvest and associated road construction alternatives in Analysis Area 3. The Forest Service analysis indicated the implementation of Alternative 2 will have minor or no effects on the availability of subsistence resources. The analysis found the implementation of Alternatives 1, 3, 4, 5, and 6 could potentially affect key subsistence wildlife species in Analysis Area 3. The principal subsistence use areas that could be affected are Alaska Department of Fish and Game Minor Harvest Areas 3523, 3524, 3625, and 3626. The potential effect was projected to result from an increase in accessibility resulting from proposed road construction. Much of the potential effects on the subsistence wildlife species were projected to be offset by the road access management plan presented to mitigate the effects on brown bear. Still, the potential effects on key subsistence wildlife resources in Minor Harvest Areas 3523, 3524, 3625, and 3626 were projected to be enough to substantiate a finding in accordance with ANILCA Section 810 that the actions may restrict subsistence use.

The Forest Service held subsistence hearings in conformance with Section 810 of ANILCA following the release of this Draft SEIS. During the Tongass Resource Use Cooperative Survey, Hoonah and Tenakee Springs households expressed concerns about the potential effects to subsistence resources resulting from forestry management and fish and wildlife management activities on National Forest lands. The hearings gave Hoonah, Tenakee Springs, and other subsistence communities further opportunity to provide additional information concerning potential subsistence use impacts associated with the proposed timber harvest alternatives in Analysis Area 3. The comments received during the hearings were considered during the preparation of the Final Environmental Impact Statement for the Supplement.

The ANILCA Section 810 Subsistence Evaluation in Chapter 4 of the SEIS for Analysis Area 3 projects Analysis Area 3 alternatives, when combined with activities on adjacent private lands, could result in an immediate or reasonably foreseeable significant possibility of a significant restriction of subsistence use of wildlife, but not for fish and shellfish, or other food resources. (See Consolidated Appendix, Volume II, C-3, on data adequacy and models used). The evaluation further found that enough is known about foreseeable, programmatic Forest Service activities and other potential foreseeable activities on private lands to project that the cumulative effects may possibly restrict subsistence uses.

Standards, Guidelines, and Mitigation Measures

Numerous mitigation, enhancement, and preventative measures that are used by the Forest Service are defined in several Forest Service Handbooks, the Alaska Regional Guide (Forest Service 1983a), and the Tongass Land Management Plan (Forest Service 1979a, 1986d). Many of these guides were described in detail in the 1981-86 FEIS (Forest Service 1980a, Section III, Planning Alternatives and Recommendations) and in the 1986-90 FEIS (Forest Service 1986b, Subsection 2c). No new specific standards and guidelines were developed for the remainder of this Operating Period. Specific mitigation measures, as applied to each individual unit, can be seen in the "As Planned" unit layout cards. These unit cards are an important tool for implementing the project, as they list standards and guidelines and provide a mechanism for tracking the project implementation. In addition, specific road closure options are presented as a mitigation measure for potential brown bear impacts. Road closure options may also have an impact on recreation and subsistence users. Unit cards also contain an evaluation of the potential effectiveness of the mitigation measures being proposed. Unit Cards may be found in Appendix A-1 of the SEIS for Analysis Area 3.

Final Supplement to the Environmental Impact Statements
for the 1981-86 and 1986-90 Operating Periods

Alaska Pulp Corporation Long-Term Timber Sale Contract

**Analysis Area 6: Corner Bay
Executive Summary**

U.S.D.A. - Forest Service
Alaska Region
Alaska

Lead Agency

Alaska Region
U.S.D.A. Forest Service
Federal Office Building
P.O. Box 21628
Juneau, Alaska 99802-1628

Responsible Official:

Michael A. Barton
Regional Forester
Alaska Region

**For Further Information
Contact:**

James W. Pierce
SEIS Team Leader

U.S.D.A. Forest Service
Alaska Region
Federal Building
P.O. Box 21628
Juneau, AK 99802-1628
(907) 586-8871

Gordon Anderson
Chatham Area
Team Leader
Tongass National Forest
Chatham Area
204 Siginaka Way
Sitka, AK 99835

(907) 747-6671

Analysis Area 6 Summary

In 1956, the Forest Service and Alaska Lumber and Pulp, now Alaska Pulp Corporation (APC), entered into a timber sale contract that terminates in 2011. Every five years since implementation of the National Environmental Policy Act (NEPA), the Forest Service has prepared an environmental impact statement (EIS) for the succeeding Five-Year Operating Plan.

The Federal District Court Case, *Tenakee Springs v. Courtright*, challenged the adequacy of the 1981-86 Operating Plan EIS under NEPA. In its 1987 decision, the Court found that the Forest Service would need to prepare a supplement to the 1981-86 EIS to address issues raised by departures from the original 1981-86 Operating Plan. The departures have included the deletion or deferral of harvest units on lands selected for conveyance to Native Corporations under the Alaska Native Claims Settlement Act (ANCSA) of 1971.

In addition to changing the Operating Plan, the Court identified three other issues requiring further analysis including: the need to consider a no-action alternative specific to the Upper Game Creek area of Chichagof Island, the need for more site-specific detail regarding environmental effects of alternate road and harvest configurations in the upper Game Creek area, and additional analysis in the Upper Game Creek area of the foreseeable cumulative impacts on the environment resulting from an expanding network of roads and harvest units.

The Forest Service decided to supplement both the 1981-86 and 1986-90 EISs because both documents analyzed many of the same harvest areas and dealt with the same issues and re-analysis of issues in the 1981-86 EIS, and could affect the same issues in the 1986-90 EIS. The Notice of Intent to produce the Supplemental EISs was published in the Federal Register on October 15, 1987.

The EIS Supplement has been prepared in two phases. Phase I provided information and analysis of the issues, narrowing the focus from the whole APC Long-Term Timber Sale area to four specific Analysis Areas (2, 3, 6, and 12) that should be further evaluated for timber harvest and road construction through the balance of the Plan period, ending December 31, 1990. The present draft Phase II document presents site-specific environmental impacts of proposed roads and harvest units in southeastern Chichagof Island, designated as Analysis Area 6.

This SEIS document uses four main chapters to discuss the purpose and need for supplementing the previous EISs, the alternatives including the proposed action, the existing conditions of the affected environment, and the environmental consequences of the alternatives as well as measures to mitigate adverse effects. A number of appendices contain supporting materials.

On the basis of the Phase I and Phase II SEIS analysis, the Regional Forester must decide:

- If a) the changes in land ownership, b) deferrals, deletions, or changes of timber-harvest units, and c) the effects of the Alaska National Interest Lands Conservation Act (ANILCA) subsistence legislation warrant amending the Records of Decision for the 1981-86 or 1986-90 EISs.
- If the contractual timber commitments between the date of publication of this document and December 31, 1990 (end of the 1986-90 Operating Period) should be met from Value Comparison Units (VCUs) that have some existing access roads and harvest units.
- If the contractual commitments are not met from previously roaded VCUs, how much additional timber will be needed and from which VCUs the timber harvest will be scheduled.

Analysis Area 6

The issues discussed in the 1981-86 and 1986-90 EISs include:

1. The socioeconomic effects of logging and associated development on employment, business, populations, and quality of life.
2. The costs and benefits or trade-offs between environmental protection measures and the economics of the harvest activities.
3. The effects of timber harvest activities on fish habitat.
4. The effects of timber harvest activities on wildlife habitat.
5. The distribution of harvest by volume class.
6. The locations and environmental effects of log transfer facilities.
7. Maintaining resource values in high interest areas noted for fisheries, wildlife, recreation, or other values.
8. Effects on visual, recreation, and wilderness resources.

Other issues specified by the Court during the appeals process include consideration of a no-action alternative, consideration of effects on subsistence pursuant to Section 810 of ANILCA, and consideration of foreseeable long-term and cumulative effects of timber harvest. In 1988, a case (*Hanlon v. Barton*) filed in Federal District Court raised several issues regarding the effects of timber harvest near Hoonah on subsistence users. The Court recognized the merit of some claims which have implications for Analysis Area 6: consideration of a no further harvest alternative and consideration of "carryover" logging and road construction.

To address the issues and comply with NEPA regulations while meeting the APC Contract requirements, the Forest Service developed seven alternatives for the Analysis Area 6 Draft SEIS. Alternative 1, the No Action/Current Direction option, would permit the activities currently authorized by the Court to continue in nondeferred VCUs. A no further harvest option would stop all further road construction and timber harvest at the time of the Record of Decision. This option would remain in effect through December 31, 1990.

The six action alternatives propose a range of timber harvest related activities. Alternative 2 proposes to harvest 53.0 MMBF, construct 26.7 miles of system roads, and use the existing log transfer facility (LTF) and logging camp at Corner Bay, which is currently being expanded. This alternative would also reactivate and expand the False Island logging camp and renovate the False Island LTF or the Sitkoh Bay LTF. The Kadashan Road would not be connected to the Sitkoh Bay/False Island road system. Alternative 3 would harvest 68.1 MMBF, construct 31 miles of new road, use the Corner Bay logging camp and LTF, reactivate and expand the False Island logging camp, and renovate the False Island LTF or the Sitkoh Bay LTF. It would not complete the Kadashan Road. Alternative 4 proposes to harvest 67.5 MMBF, construct 37 miles of new road, and use the Corner Bay camp and LTF. The Kadashan Road would be completed to connect Corner Bay with the False Island road system. Alternative 5 would harvest 120.2 MMBF, construct 38 miles of new road, and use the Corner Bay camp and LTF. This alternative would also reactivate and expand the False Island logging camp and renovate the False Island LTF or the Sitkoh Bay LTF. It would not complete the Kadashan Road. Alternative 6 proposes to harvest 80.4 MMBF, construct 45 miles of new road, and use the Corner Bay camp and LTF. It would complete the Kadashan Road. Alternative 7 would harvest 79.3 MMBF and construct 38 miles of new road. This alternative would use the Corner Bay camp and LTF, reactivate and expand the False Island logging camp, and renovate the Sitkoh Bay and Todd LTFs. It would not complete the Kadashan Road.

The No Action Alternative 1 would have no additional environmental impacts. None of the action alternatives would locate roads or units on extreme-hazard soils; each of the alternatives would disturb soils over about 5 to 10 percent of most harvest units. The alternatives

Analysis Area 6

would alter noncommercial and understory species composition, but not to a significant extent. Scheduled planting and precommercial thinning would accelerate both conifer and understory growth rates for longer periods of time.

Action Alternatives 2 through 7 were projected to have varied impacts on wildlife and are within the TLMP requirements. None of the action alternatives would affect beach fringe, estuarine fringe, eagle sites, or inland wetlands. The alternatives would impact between none (Alternatives 4 and 6) and 2 percent (Alternative 5) of existing deer winter range. The alternatives would impact between none (Alternatives 2 and 7) and 6 percent (Alternative 5) of streamside/riparian zones. Potential project effects on projected deer, brown bear, and pine marten habitat capability range from slight to substantial, particularly when project effects are combined with past effects and are carried into the foreseeable future.

Each of the action alternatives would encroach into some Aquatic Habitat Management Units (AHMU), ranging in Class I habitat from 0.5 (Alternative 7) to 2.7 (Alternative 6) miles of one side of a creek, and from 0.1 (Alternative 7) to 3.5 (Alternative 4) miles of both sides of a creek. For Class II habitat, the figures range from 0.4 (Alternative 7) to 2.5 (Alternative 3) miles of one side of a creek, and from 0.2 (Alternative 7) to 6.2 (Alternative 2) miles of both sides of a creek.

The action alternatives prescribe AHMU protection measures for roads ranging from 0.4 (Alternative 2) to 1.4 (Alternative 6) miles. The alternatives would include from 7 (Alternative 2) to 17 (Alternative 6) Class I stream crossings that would require benefit/cost analysis. The alternatives pose no measurable potential for change in stream flows. The application of standards and guidelines to minimize soils impacts is expected to essentially prevent stream sedimentation.

While Alternatives 4 and 6 would not change the marine environment, Alternatives 2, 3, and 5 would reuse either the False Island or Sitkoh Bay log transfer facilities, with minor impacts on marine life. Alternative 7 would reuse both the Sitkoh Bay and Todd log transfer facilities. All of the alternatives have a low potential for impacting marine fisheries outside the sill, and little impact on salmon, herring, or crab is expected.

None of the alternatives would affect land status. All of the action alternatives would shift the recreation opportunities of some acres from semiprimitive-nonmotorized to roaded natural or roaded modified.

The action alternatives fail to fully meet assigned visual quality objectives in some VCUs ranging from one (Alternative 4) to six (Alternative 5). Impacts to cultural resources are not expected. The Forest Service would conduct inventory, evaluation, and mitigation of cultural resources sites according to an approved research design to avoid adverse impacts under any of the alternatives.

A Subsistence Evaluation was conducted pursuant to ANILCA Section 810, including public hearings held in subsistence communities in the vicinity of Analysis Area 2. It found that:

- (a) The potential foreseeable effects from Alternatives 1 through 7 of the proposed project in Analysis Area 6 present a no, or only slight significant possibility of a significant restriction of subsistence uses of fish, shellfish, timber and other foods.
- (b) The potential effects from Alternatives 2 through 7 of the proposed project in Analysis Area 6 present a significant possibility of a significant restriction of subsistence uses of wildlife.

The Final SEIS Findings further project subsistence use may be significantly restricted in Analysis Area 6 from the results of implementing long-term management direction in the Tongass Land Management Plan, from future actions on other surrounding lands, and from adding those potential effects to the foreseeable effects of the proposed action.

Analysis Area 6

The six action alternatives were found to be similar in addressing most of the issues. Environmental impacts, including effects on fish and wildlife habitat and the marine environment, visual resources, and recreation areas, were concluded to be minimal. The analysis found that none of the action alternatives would harvest a disproportionate amount or percentage of high volume stands. The action alternatives would provide a range of timber volume sufficient to maintain timber-dependent employment and services.

Chapter 4 of the SEIS for Analysis Area 6 identifies numerous measures applied to mitigate the potential adverse impacts of timber harvest activities. These measures are used to protect and maintain fish and wildlife habitat, protect aesthetic values, prevent landslides and windthrow, and improve productivity of timber stands. Various Forest Service documents have discussed the standards, guidelines, monitoring, and mitigation measures in detail. Their purpose is to foresee and avoid or prevent potential problems in the planning phases of forest management. The potential effectiveness of proposed mitigation measures is also discussed.

The alternatives differ considerably in economic benefits. The no action Alternative 1 would result in a loss of some 167 jobs and almost \$4 million in salaries for the volume not harvested. By contrast, Alternative 2 would maintain 393 jobs and over \$9 million in salaries. Alternatives 3 and 4 would each maintain 535 jobs and over \$12 million in salaries. Alternative 5 would maintain 975 jobs and almost \$23 million in salaries. Alternative 6 would maintain 637 jobs and almost \$15 million in salaries. Alternative 7 would maintain 620 jobs and over \$14 million in salaries. In terms of reasonably foreseeable, long-term, and cumulative effects, all of the action alternatives would result in minimal impacts on all of the resources that were evaluated.

Selection of the no action Alternative 1 would likely cause a high level of public concern. This alternative would not facilitate development of additional roads into new areas, is lowest in effectiveness for implementing TLMP guidelines for LUD III and LUD IV areas, and lowest in effectiveness for providing contract volume to APC. Alternative 1 could reduce employment by the contract logger, Silver Bay Logging, as well as reduce the supply of wood to the Wrangell mill and reduce the supply of pulp to the APC Sitka plant. This alternative would require the Forest Service to provide sufficient volume in other parts of the APC Contract area, and may cause the Forest Service to breach its contractual obligations.

The volume harvested under Alternative 2 would not meet the minimum range projected in Phase I of the SEIS. The Forest Service would have to make up the additional volume in another analysis area and may result in breaching the APC contract. Alternative 2 has the lowest risk of any alternative except No. 1, however, the economic benefits are the lowest, and the volume harvested per mile of road is low. This alternative is considered to be low to moderate in effectiveness to implement TLMP guidelines for LUD III and IV VCUs. Alternative 2 was considered to be moderately sensitive in public concern.

Alternative 3 would meet the minimum range of harvest projected in Phase I. This alternative has less potential for public concern than Alternative 2. It is considered moderate in effectiveness to implement TLMP guidelines for LUD IV VCUs and low to moderate for LUD III VCUs.

Alternative 4 would also meet the minimum range of harvest projected in Phase I. It has a high potential for public concern associated with the proposed connection of the Kadashan Road and the proposed timber harvest in Trap Bay (VCU 237). This alternative is considered moderate in effectiveness to implement TLMP guidelines for LUD IV VCUs and low to moderate for LUD III VCUs.

Alternative 5 exceeds the upper range of harvest range projected in Phase I. It has the greatest potential for public concern as timber harvest and road construction are proposed in the Kadashan watershed (VCU 235) and Trap Bay watershed (VCU 237). Both VCUs are high public interest areas. The alternative also proposes harvest and road construction in two

VCUs that have been selected by Angoon and are highly visible from the Alaska Marine Highway route along Chatham Strait. Alternative 5 is considered high in effectiveness to implement TLMP guidelines for LUD IV VCUs and moderate to high for LUD III VCUs.

Alternative 6 also exceeds the upper range of harvest level projected in Phase I. Alternative 6, like Alternative 5, has a high potential for public concern as timber harvest and road construction are proposed in Kadashan and Trap Bay (VCUs 235 and 237). Alternative 6 is considered high in effectiveness to implement TLMP guidelines for LUD IV VCUs and moderate to high for LUD III VCUs.

Alternative 7 would harvest slightly more than the upper range volume projected in Phase I. It has high potential for public concern associated with harvest in Kadashan and Trap Bay. In addition, the proposed harvest of the Todd blowdown units has some risk resulting from lack of favor with APC and ADF&G. Alternative 7 is considered moderate in effectiveness to implement TLMP guidelines for LUD IV VCUs and low to moderate for LUD III VCUs.

Forest Service staff evaluated the benefits and impacts of each alternative against the issues to recommend the preferred alternative. Alternative 4 is tentatively identified as the preferred alternative, pending further consideration in the Record of Decision.

Comparison of the Alternatives

The comparison of alternatives draws together the conclusions from the materials presented throughout the SEIS and provides the results of the analysis. It also presents the rationale leading to the identification of the preferred alternative. The following section compares the environmental impacts of the alternatives, summarizing information in Chapter 4 of the SEIS for Analysis Area 6. The discussion focuses on the issues, presenting a perspective on their perceived importance.

Impact Comparison

Table AA6-1 provides a summary comparison of the impacts anticipated from each of the alternatives. This table summarizes more detailed information found in Chapter 4, Environmental Consequences of the SEIS for Analysis Area 6. Figure AA6-1 shows a comparison of road construction for all alternatives.

Issue Comparison

The following paragraphs compare the alternatives in terms of the issues listed above and presented in Chapter 1 of the SEIS for Analysis Area 6.

Issue 1: Socioeconomic effects of timber harvesting and associated development

The baseline for comparing the alternatives is the No Action-Current Direction Alternative. The Forest Service predicts that all of the available volume in the nondeferred VCUs will be harvested by the end of the current 1989 operating season.

The No Further Harvest Alternative in Analysis Area 6 would have severe consequences to the ability of the Forest Service to meet its contractual obligations to the Alaska Pulp Corporation. Selection of the No Further Harvest Alternative in Analysis Area 6 would severely limit the choice of alternatives from the other areas that could be selected to meet the contract needs. The No Further Harvest Alternative could result in the Government breaching the terms of the Contract. Unilateral breach and possible termination of the long-term timber sale contracts would likely result in a large damage claim which the Congressional Research Service estimates might be as high as \$53.7 million for the APC Contract.

Alternatives 2 through 7 provide a range of timber volume, as described in this Chapter, that would provide sufficient volume to assist in maintaining the existing timber-related employment opportunities in the region. Alternative 5, which provides the most volume, would

Analysis Area 6

Table AA6-1

Summary Comparison of Alternatives¹

	Alternative 1 No Action/Current Direction	Alternative 2	Alternative 3
Soils	No additional impacts.	No units or roads would be located on extreme hazard soils. This would greatly reduce the potential to adversely impact soil productivity, mass wasting, and soil loss.	Impacts would be the same for all action alternatives.
Vegetation	Tree species composition and density would not change. No planting or precommercial thinning would be needed.	Tree and understory species composition would be slightly altered on 2,472 acres. Pre-commercial thinning would be scheduled to accelerate both understory and conifer growth rates.	Tree and understory species composition would be slightly altered on 3,036 acres. Pre-commercial thinning would be scheduled to accelerate both understory and conifer growth rates.
Wildlife			
<i>Beach Fringe</i>	No additional impacts. To date, 1,055 acres, or 19 percent, has been impacted.	Beach fringe would not be further impacted.	
<i>Estuarine Fringe</i>	No additional impacts. To date, 413 acres, or 21 percent, has been impacted.	Estuarine fringe would not be further impacted.	
<i>Eagle Sites</i>	No known eagle nest sites would be impacted.		
<i>Deer Winter Range</i>	Deer winter range would not be further impacted. To date, 3,930 acres, or 19 percent, has been impacted.		Approximately 155 acres or 1.0 percent of existing deer winter range (DWR) impacted. This is within TLMP Guidelines. Total impacted to date is 19 percent.
<i>Inland Wetlands</i>	No additional impacts. To date, 222 acres, or 20 percent, has been impacted.	Inland wetlands would not be further impacted.	
<i>Streamside/Riparian</i>	No additional impacts. To date, 1,799 acres, or 22 percent, has been impacted.	Streamside/Riparian habitat would not be further impacted.	Total of 317 acres or 4.0 percent of Streamside/Riparian acres. TLMP calls for 20 percent in LUD III or 10 percent in LUD IV to be retained. Impacts are within TLMP Guidelines.

(Table Continued)

Alternative 4	Alternative 5	Alternative 6	Alternative 7
Impacts would be the same for all action alternatives.			
Tree and understory species composition would be slightly altered on 3,008 acres. Pre-commercial thinning would be scheduled to accelerate both understory and conifer growth rates.	Tree and understory species composition would be slightly altered on 5,013 acres. Pre-commercial thinning would be scheduled to accelerate both understory and conifer growth rates.	Tree and understory species composition would be slightly altered on 3,383 acres. Pre-commercial thinning would be scheduled to accelerate both understory and conifer growth rates.	Tree and understory species composition would be slightly altered on 3,243 acres. Pre-commercial thinning would be scheduled to accelerate both understory and conifer growth rates.
Beach fringe would not be further impacted	Less than one percent (approximately five acres) of beach fringe would be further impacted.		Beach fringe would not be further impacted.
Estuarine fringe would not be further impacted.		Approximately 20 acres, or one percent, would be impacted.	Estuarine fringe would not be further impacted.
No known eagle nest sites would be impacted by any of the alternatives.			
Approximately 360 acres (2%) of existing DWR would be impacted. This is within TLMP Guidelines.	Greatest impact on DWR. Approximately 1,468 acres or 9 percent of existing DWR impacted. This is within TLMP Guidelines.	Approximately 559 acres (3%) of existing DWR would be impacted. This is within TLMP Guidelines.	Approximately 429 acres (2%) of existing DWR would be impacted. This is within TLMP Guidelines.
Inland wetlands would not be further impacted.			
Total of 135 acres or 2.0 percent of Streamside/Riparian acres. Impacts are within TLMP Guidelines.	Total of 135 acres or 2.0 percent of Streamside/Riparian acres. Impacts are within TLMP Guidelines.	Total of 135 acres or 2.0 percent of Streamside/Riparian acres. Impacts are within TLMP Guidelines.	Total of 55 acres (less than 1.0 percent) of Streamside/Riparian acres. Impacts are within TLMP Guidelines.

(Table Continued)

Analysis Area 6

Table AA6-1 (Continued)

Summary Comparison of Alternatives¹

	Alternative 1 No Action/Current Direction	Alternative 2	Alternative 3
Fish Habitat			
<i>Aquatic Habitat Management Units</i>	No additional impacts.	Three units with 100 foot buff- ers on Class I; one unit with a 50 foot buffer on Class II	Three units with 100 foot buff- ers on Class I; two units with 75 foot buffers on Class II; eight units with 100 foot buff- ers on Class II; two units with 50 foot buffers on Class II.
<i>Roads and Crossings</i>	No additional impacts.	About 0.4 miles of road re- quires AHMU protection meas- ures. Seven Class I stream crossings would require bene- fit/cost analysis.	About 1.6 miles of road re- quires AHMU protection meas- ures. Eleven Class I stream crossings would require bene- fit/cost analysis.
<i>Stream Flow</i>	No change.	Little potential for change in stream flows.	
<i>Sediment</i>	No change.	Application of standards and guidelines is expected to minimize impacts to soils.	
Marine Environment			
	Low potential for impacting marine fisheries outside the sill. Little impact on salmon or herring or crab.		
Land Status			
	No change.	No change.	No change.
Recreation			
	Would maintain the existing recreational character.	Additional logging in VCU 236 and 239 would represent a 1,227 acre change in recrea- tion opportunities within the area from semi-primitive non- motorized to road modified or roaded natural.	AA6 would shift from semi- primitive nonmotorized to roaded natural or roaded modified in VCUs where har- vest activities are taking place.

(Table Continued)

Alternative 4	Alternative 5	Alternative 6	Alternative 7
All Class I. One unit with a 25 foot buffer; three units with 50 foot buffers; two units with 75 foot buffers; 9 units with 100 foot buffers.	Class I: one unit with a 25 foot buffer; three units with 75 foot buffers; four units with 50 foot buffers; three units with 100 foot buffers. Class II: one unit with a 75 foot buffer.	All Class I. One unit with a 50 foot buffer; one unit with a 75 foot buffer; ten units with 100 foot buffers.	All Class I. One unit with a 50 foot buffer; one unit with a 75 foot buffer; eight units with 100 foot buffers.
About 1.4 miles of road would require AHMU protection measures. Fifteen Class I stream crossings would require benefit/cost analysis.	About 0.8 miles of road would require AHMU protection measures. Fifteen Class I stream crossings would require benefit/cost analysis.	About 2.2 miles of road would require AHMU protection measures. Seventeen Class I stream crossings would require benefit/cost analysis.	About 1.6 miles of road would require AHMU protection measures. Thirteen Class I stream crossings would require benefit/cost analysis.
Little potential for change in stream flows.			
Application of standards and guidelines is expected to minimize impacts to soils.			
Low potential for impacting marine fisheries outside the sill. Little impact on salmon or herring or crab.			
No change.	No change.	No change.	No change.
Analysis area would shift from semi-primitive nonmotorized to roaded natural or roaded modified in VCUs where harvest activities are taking place.			

(Table Continued)

Analysis Area 6

Table 2-8 (Continued)

Summary Comparison of Alternatives¹

	Alternative 1 No Action/Current Direction	Alternative 2	Alternative 3
Visual	Visual character would not be affected.	Four VCUs would be entered and two meet assigned VQOs. VCUs 239 and 243 would not fully meet assigned VQOs.	Five VCUs would be entered and three meet assigned VQOs. Portions of VCUs 239 and 243 would not fully meet assigned VQOs.
Cultural Resources	No impact.	No impacts to known cultural resources.	
Socioeconomics	Impacts would include loss of 167 jobs and \$3.8 million in salaries for the timber industry.	Harvest volume would maintain 393 jobs and \$9.1 million in salaries.	Harvest volume would maintain 535 jobs and \$12.4 million in salaries.
Subsistence	Significant possibility of a significant restriction of subsistence use of wildlife.		
Timber/Firewood	Free use policies not affected.	Free use policies not affected.	
Reasonably Foreseeable, Long-Term, and Cumulative Effects	Minimal effects on all resources evaluated, except as described under subsistence.		

¹ A detailed comparison of impacts is found in Chapter 4 of the SEIS for Analysis Area 6.

Alternative 4	Alternative 5	Alternative 6	Alternative 7
Four VCUs would be entered and three meet assigned VQOs. This alternative causes least impact to visual character. Portions of VCU 243 would not fully meet assigned VQOs.	Nine VCUs would be entered and three meet assigned VQOs. Greatest impact to area's visual quality.	Four VCUs would be entered and two meet assigned VQOs. Portions of VCUs 235 and 243 would not fully meet assigned VQOs.	Nine VCUs would be entered and four meet assigned VQOs. VCUs 236, 237, 238, and 242 meet assigned VQOs.

No impacts to known cultural resources.

Harvest volume would maintain 535 jobs and \$12.4 million in salaries.	Harvest volume would maintain 975 jobs and \$22.6 million in salaries.	Harvest volume would maintain 637 jobs and \$14.8 million in salaries.	Harvest volume would maintain 620 jobs and \$14.4 million in salaries.
--	--	--	--

Significant possibility of a significant restriction of subsistence use of wildlife.

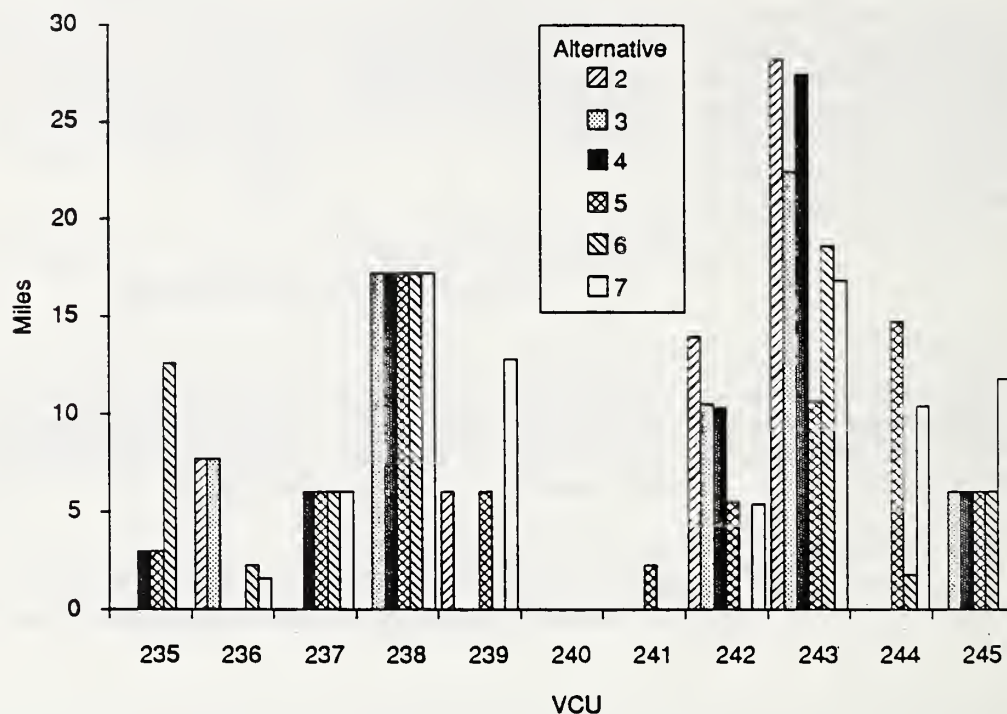
Free use policies not affected.

Minimal effects from all alternatives on all resources evaluated, except as described under subsistence.

Analysis Area 6

Figure AA6-1

Road Construction Required for Each Alternative in Each VCU¹



SOURCE: SEIS Planning Record.

¹ All currently authorized road construction is anticipated to be completed prior to the ROD, therefore no road construction is shown for Alternative 1.

maintain approximately 1,022 direct and indirect jobs. Alternative 2 would maintain 450 direct and indirect jobs. Refer to the Economic Comparisons of the SEIS for Analysis Area 6 section for further discussion.

Issue 2: Costs and benefits associated with implementing the alternatives.

The No Action - Current Direction Alternative is the baseline for comparing the impacts of this issue. The summary of cost/value analysis presented in the Economic Comparison section, Chapter 2 of the SEIS, describes the dollar values maintained or forgone by each of the alternatives being evaluated. The No Further Harvest Alternative could also impact the cost of operation at the APC Pulp Mill. Arguably, a volume disruption of this type could cause the pulp mill to experience temporary shutdowns. The cost of a temporary shutdown is estimated by APC to be \$500,000, plus \$4,800 for every day of shutdown (Appendix A-4a, Draft SEIS). None of the alternatives would have any measurable direct effect on commercial fishing, recreation, tourism, or other sectors of the economy.

Issue 3: Effects of timber harvest and related activities on fisheries habitat.

The No Action-Current Direction Alternative provides the baseline for comparing the alternatives. The assumptions made for the socioeconomic issues also pertain to the comparison of proposed timber harvest alternative effects on fisheries.

The evaluation in Chapter 4 shows that the potential effects on the fisheries resources evaluated are minimal. Forest Service staff followed the 1986-90 FEIS standards and guidelines and the Alaska Region Aquatic Habitat Management Unit (AHMU) Guidelines (Forest Service 1986a) in developing the timber harvest alternatives to minimize the potential for impact on the valuable salmon and trout fisheries in Analysis Area 6. Adhering to the AHMU Guidelines during the formulation of alternatives minimized the total stream bank miles affected, the number of stream crossings, and the amount of potential road construction within designated AHMUs. Site-specific prescriptions have been developed and were selected according to each situation to minimize the potential for impact on the stream spawning and rearing habitat. The site-specific aquatic habitat management unit prescriptions are noted on the individual timber harvest unit cards in Appendix A-1 of the SEIS for Analysis Area 6.

Issue 4: Effects of timber harvest and related activities on wildlife habitat.

The baseline for comparison of alternatives is the No Action-Current Direction Alternative. The assumptions made for the socioeconomic issues also pertain to the following discussion on comparison of proposed timber harvest alternative effects on wildlife. Two points in time were used to evaluate the extent of potential wildlife effects. A point prior to timber harvesting in the area was used when comparing the percent reduction of habitat capability. A point in time after scheduled timber harvest activities in the SEIS was used to determine total impacts to emphasis habitat.

The evaluation presented in detail in Chapter 4 of the SEIS for Analysis Area 6 and summarized here shows the potential effects on the wildlife resources evaluated to be minimal. Based on current habitat capability projections, Analysis Area 6 has the potential to support over 4,063 deer and over 448 pine martens.

The potential reduction of habitat capability by the proposed timber harvest alternatives ranges from 71 to 159 deer and 7 to 16 pine martens (Table AA6-2). The potential percent reduction by alternative ranges from 1.0 to 3.4 percent for deer and 1.6 to 3.6 percent for the pine marten (Table AA6-2).

Table AA6-3 displays the acres of inventoried wildlife habitat that would be affected by the proposed timber harvest alternatives and it displays the percent of unaffected wildlife habitat. Although the acres affected vary from alternative to alternative, the amount of acres affected with respect to the total inventoried emphasis species habitat acres is small.

The Record of Decision for the 1986-90 Operating Period FEIS for the APC Long-Term Timber Sale prescribed approximately 88,500 acres to be managed in Old-Growth Habitat Condition for wildlife, of which 10,489 acres are in Analysis Area 6. The prescription was to remain in effect during the 1986-1990 Operating Period unless the stated management direction is modified after further NEPA analysis and public disclosure. The Supplement displays the effect on that designated Old-Growth Habitat of new alternatives being considered in this NEPA assessment. Table AA6-4 displays the range of acres that would be affected and the percent of Old-Growth Habitat Condition remaining by proposed timber harvest alternative. Timber harvest effects shown for the emphasis species and emphasis habitats are indicative of the effects on other wildlife species and their habitats in Analysis Area 6.

Issue 5: Distribution of harvest by volume class.

Table AA6-5 summarizes the acres proposed for harvest by volume class. Figure AA6-2 shows the cumulative percentage of acres in each volume class harvested or proposed for harvest under each alternative. Alternative 1 provides the baseline for comparing the action alternatives for this analysis area.

Analysis Area 6

Issue 6: Log Transfer Facility (LTF) location and potential environmental effects.

All alternatives use the existing LTF at Corner Bay. Alternatives 2, 3, 5, and 7 propose the reactivation of the LTF at Sitkoh Bay, or False Island. Alternative 7 also proposes using the Todd LTF. Depending on whether the False Island LTF or the Sitkoh Bay LTF or both are used under these alternatives, the volume of timber moving through a specific LTF will vary. If only one LTF is used, the impacts will only be at that log transfer facility. Impacts at a log transfer facility will also be greater if it is the only one used than if the timber volume is split between the two facilities. No new LTF sites are proposed by any alternatives. All of these sites have current Corps of Engineers permits as well as ADNR tideland leases. The Corps of Engineers permit and the ADNR title and lease for the Sitkoh Bay LTF expires May 5, 1989, but renewals have been applied for that would extend the expiration to the end of the APC contract.

Issue 7: Effects on resource values of high-interest areas.

High-interest areas were defined, based on the public response, in the 1986-90 FEIS (Forest Service 1986b, p. 1-20). In Analysis Area 6, Kadashan (VCU 235) was noted by ADF&G, SEACC, and other groups and individuals for its fisheries and wildlife values. While not specifically singled out in the 1986-90 FEIS as an area of high-interest, VCU 237, along with VCU 235, is being considered for Wilderness designation under H. R. 987.

Alternatives 1 through 3 would not harvest in VCUs 235 or 237. Alternatives 4 through 6 propose harvest of 10.7 MMBF and Alternative 7 proposes harvest of 8.3 MMBF in VCU 237. Alternative 4 proposes road construction in VCU 235, but no harvest. Alternatives 5 through 7 propose harvest of 26.7 MMBF, 19.7 MMBF, and 10.2 MMBF, respectively, in VCU 235. For more detailed discussion on the impacts to resources of concern in these areas see Chapter 4, Environmental Consequences of the SEIS for Analysis Area 6.

Table AA6-2

Projected Changes in Wildlife Habitat Capability Based on Models

	Alternative						
	1	2	3	4	5	6	7
Deer Habitat Capability							
Potential Reduction (individuals)	— ¹	46	84	71	159	95	82
Potential Reduction (percent)	— ¹	1.0	1.8	1.5	3.4	2.0	1.7
Brown Bear Habitat Capability							
Potential Reduction (individuals)	— ¹	2	10	14	22	35	14
Potential Reduction (percent)	— ¹	1.0	4.8	6.7	10.5	16.7	6.7
Pine Marten Habitat Capability							
Potential Reduction (individuals)	2.0	15	19	33	37	79	34
Potential Reduction (percent)	1.0	3.3	4.2	7.3	8.2	17.6	7.6

SOURCE: Forest Service in consultation with ADF&G (SEIS Planning Record). See Consolidated Appendix, Volume II, C-3, Theme Response 9, Data and Models Used.

¹ No additional change.

Table AA6-3

Changes in Wildlife Habitat Due to Timber Harvest

	Alternative						
	1	2	3	4	5	6	7
Forested							
Proposed Harvest (acres)	276	2,472	3,036	3,008	5,013	3,383	3,243
Percent Remaining	87	86	85	85	84	85	85
Deer Winter Range							
Proposed Harvest (acres)	0	155	155	0	358	0	302
Percent Remaining	81	80	80	81	79	81	79
Inland Wetland							
Proposed Harvest (acres)	0	0	0	0	0	0	0
Percent Remaining	80	80	80	80	80	80	80
Beach Fringe							
Proposed Harvest (acres)	0	21	0	0	287	42	0
Percent Remaining	81	81	81	81	76	81	81
Estuarine Fringe							
Proposed Harvest (acres)	0	0	0	0	0	0	0
Percent Remaining	79	79	79	79	79	79	79
Streamside Riparian							
Proposed Harvest (acres)	0	0	317	375	461	375	0
Percent Remaining	78	78	74	73	73	73	78

SOURCE: 1986-90 FEIS (Forest Service 1986b) and SEIS Planning Record.

Issue 8: Effects on visual, recreation, and wilderness resources.

Visual Resources: Alternative 1 would have the least effect on visual resources. The action alternatives would have the following effects:

Alternative 2 would enter 4 of the 11 VCUs in Analysis Area 6. Of those four, two VCUs (236 and 242) would fully meet the assigned VQOs. Portions of VCUs 239 and 243 would not fully meet the assigned VQOs.

The Sitkoh Bay LTF is located across Sitkoh Bay from the resort at the Chatham Cannery site. If this log transfer facility is chosen for use under this alternative, there would be an impact on the visual resources of VCU 243. These impacts would be less if the False Island LTF is also used and least if only the False Island LTF is used.

Alternative 3 proposes to enter five VCUs. Of those five, three VCUs (236, 238, and 242) would meet the assigned VQOs. Portions of VCUs 239 and 243 would not fully meet the assigned VQOs.

Alternative 4 would enter only 4 of the 11 VCUs in Analysis Area 6. Of those 4, 3 VCUs (237, 238, and 242) would fully meet assigned visual quality objectives. Portions of VCU 243 would not meet assigned VQOs.

Analysis Area 6

Table AA6-4

Changes in Old-Growth Habitat Prescriptions Due to Timber Harvest¹

	Alternative						
	1	2	3	4	5	6	7
Old-Growth Conditions							
Proposed Harvest (acres)	0	317	188	0	990	179	304
Percent Remaining	100	97	98	100	90	98	97

SOURCE: 1986-90 FEIS (Forest Service 1986b).

¹ Term refers to old growth as described on page 4-13, 1986-90 FEIS.

Alternative 5 proposes to enter a total of nine VCUs. Three VCUs (237, 238, and 240) would meet the assigned visual quality objectives and six VCUs would have portions that would not fully meet the assigned VQOs. Compared to other alternatives, this alternative has the most VCUs that fail to fully meet the assigned VQOs.

The Sitkoh Bay LTF is located across Sitkoh Bay from the resort at the Chatham Cannery site. If this log transfer facility is chosen for use under this alternative, there would be an impact on the visual resources of VCU 243. These impacts would be less if the False Island LTF is also used and least if only the False Island LTF is used.

Alternative 6 would enter 4 of the 11 VCUs in Analysis Area 6. Of those four, two VCUs (237 and 238) would meet the assigned VQOs. Portions of VCUs 235 and 243 would not fully meet the assigned VQOs.

Alternative 7 proposes to enter a total of nine VCUs. Four VCUs (236, 237, 238, and 242) would meet the assigned visual quality objectives. Portions of the remaining five VCUs would not fully meet the assigned VQOs.

Recreation Resources: The No Action Alternative would result in the least impacts on recreation. Although changes in recreation opportunities would occur under all of the action alternatives, the scope of change is strongly related to the availability of access to Analysis Area 6. No increase in public transportation is likely. Therefore, recreational use is not expected to increase. These factors limit effects on recreation primarily to the few residents and to the limited number of users who access the area by boat.

Table AA6-5

Acres Proposed for Harvest

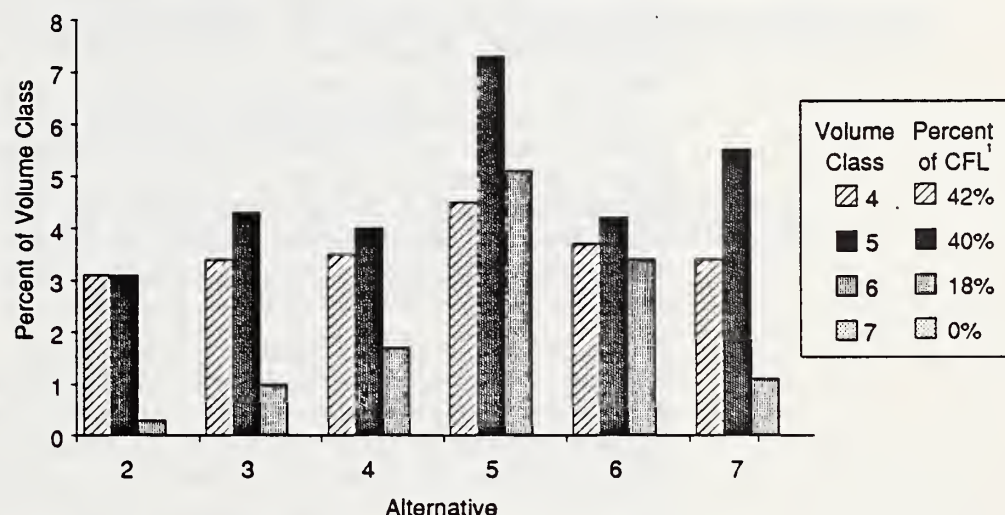
Volume Class ¹	Alternative						
	1	2	3	4	5	6	7
4	160	1,233	1,288	1,321	1,675	1,240	1,163
5	116	1,188	1,580	1,421	2,546	1,610	1,885
6	0	51	168	266	792	533	175
7	0	0	0	0	0	0	0
Total Acres	276	2,472	3,036	3,008	5,013	3,383	3,243

SOURCE: Multi-Entry Layout Process database, Chatham Area Supervisor's Office, Sitka, AK.

¹ Volume Classes 1 through 3 (not presented) contain less than 8 MBF/acre; Volume Class 4 contains 8-20 MBF/acre; Volume Class 5 contains 20-30 MBF/acre; Volume Class 6 contains 30-50 MBF/acre; and Volume Class 7 contains 50 or more MBF/acre.

Figure AA6-2

Cumulative Percentage of Volume Classes, Including Proposed Harvest



SOURCE: SEIS Planning Record.

¹ Value includes Volume Classes 4 through 7 only.

Of the action alternatives, Alternative 2 would have the least impact on the Recreation Opportunity Spectrum (ROS). Under Alternative 2 the ROS designations would change on 1,227 acres in two VCUs. If the Sitkoh Bay LTF is activated under Alternative 2, there may also be effects on the steelhead fishery, which is a primary recreation resource in Analysis Area 6. These impacts would be less if the False Island LTF is also used and least if only the False Island LTF is used. Alternative 7 would have the greatest impacts, affecting the ROS designation on 8,183 acres over seven VCUs as well as the steelhead fishery in Sitkoh Bay.

Alternatives 3 and 4 would have similar levels of impact. The ROS designation would change on 4,078 acres over four VCUs under Alternative 3 and on 4,453 acres over three VCUs under Alternative 4. However, Alternative 3 also has the potential of impacting the Steelhead fishery in Sitkoh Bay if the Sitkoh Bay LTF were activated.

Similarly, Alternative 5 affects ROS designations on 6,260 acres over six VCUs and Alternative 6 changes the ROS designation on 6,360 acres over three VCUs. If the Sitkoh Bay LTF is activated under Alternative 5, there is the further potential of impacting the steelhead fishery.

More detailed information on visual, recreation, and wilderness resources can be found in Chapter 4, Environmental Consequences, of the SEIS for Analysis Area 6.

Issue 9: Effects of proposed activities on subsistence uses

Chapter 4 of the Draft SEIS evaluated the potential of site-specific effects on subsistence use that could result from implementing any of the proposed timber harvest and associated road construction alternatives in Analysis Area 6. The Forest Service analysis indicated the implementation of Alternatives 1, 2, and 7 would have minor or no effects on the availability of subsistence resources. The analysis found the implementation of Alternatives 3, 4, 5, and 6 could potentially affect key subsistence wildlife species in a portion of Analysis Area 6. The principal subsistence use area that could be affected is Alaska Department of Fish and Game Minor Harvest Area 3527. The potential effect on key subsistence wildlife resources in Minor

Analysis Area 6

Harvest Area 3627 is enough to substantiate a finding that these alternatives may possibly restrict subsistence use in accordance with ANILCA Section 810.

The Forest Service held subsistence hearings in conformance with Section 810 of ANILCA following the release of the Draft SEIS. During the recent Tongass Resource Use Cooperative Survey, Tenakee Springs households expressed concerns about the potential effects on subsistence resources resulting from forestry management and fish and wildlife management activities on National Forest lands. Angoon households interviewed were not as concerned about forestry management activities but were definitely concerned about the effects of hunting and fishing regulations. Sitka households were more concerned about the effects of hunting and fishing regulations than the effects forestry management activities would have on habitat. The hearings gave Angoon, Tenakee Springs, Sitka, and other subsistence communities further opportunity to provide additional information concerning potential subsistence use impacts associated with the proposed timber harvest alternatives in Analysis Area 6. The comments received during the hearings were considered during the preparation of the Final Environmental Impact Statement for the Supplement.

The ANILCA Section 810 Subsistence Evaluation in Chapter 4 of the SEIS for Analysis Area 6 projects Analysis Area 6 alternatives would result in an immediate or reasonably foreseeable significant possibility of a significant restriction of subsistence use of wildlife, but not for fish and shellfish, or other food resources. The evaluation further found that enough is known about foreseeable, programmatic Forest Service activities and foreseeable other potential activities to project that the cumulative effects may possibly restrict subsistence uses.

Standards, Guidelines, and Mitigation Measures

Numerous mitigation, enhancement, and preventative measures that are used by the Forest Service are defined in several Forest Service Handbooks, the Alaska Regional Guide (Forest Service 1983a), and the Tongass Land Management Plan (Forest Service 1979a, 1986d). Many of these guides were described in detail in the 1981-86 FEIS (Forest Service 1980a, Section III, Planning Alternatives and Recommendations) and in the 1986-90 FEIS (Forest Service 1986b, Subsection 2c). No new specific standards and guidelines were developed for the remainder of this Operating Period. Specific mitigation measures, as applied to each individual unit, can be seen on "As Planned" unit layout cards. These unit cards are an important tool for implementing the project, as they list standards and guidelines and provide a mechanism for tracking the project implementation. They are reproduced in Appendix A-1 of the SEIS for Analysis Area 6. Unit Cards also contain evaluations of the potential effectiveness of proposed mitigation measures.

Final Supplement to the Environmental Impact Statements
for the 1981-86 and 1986-90 Operating Periods

Alaska Pulp Corporation Long-Term Timber Sale Contract

**Analysis Area 12: Kuiu Island
Executive Summary**

**U.S.D.A. - Forest Service
Alaska Region
Alaska**

Lead Agency

**Alaska Region
U.S.D.A. Forest Service
Federal Office Building
P.O. Box 21628
Juneau, Alaska 99802-1628**

Responsible Official:

**Michael A. Barton
Regional Forester
Alaska Region**

**For Further Information
Contact:**

**James W. Pierce
SEIS Team Leader

U.S.D.A. Forest Service
Alaska Region
Federal Building
P.O. Box 21628
Juneau, AK 99802-1628
(907) 586-8871**

**Michael Condon
Sitikine Area
Team Leader
Tongass National Forest
Sitikine Area
P.O. Box 309
Petersburg, AK 99833

(907) 772-3841**

Analysis Area 12

Summary

In 1956, the Forest Service and Alaska Lumber and Pulp, now Alaska Pulp Corporation (APC), entered into a timber sale contract that terminates in 2011. Every five years since implementation of the National Environmental Policy Act (NEPA), the Forest Service has prepared an environmental impact statement (EIS) for the succeeding Five-Year Operating Plan.

The Federal District Court Case, *Tenakee Springs v. Courtright*, challenged the adequacy of the 1981-86 Operating Plan EIS under NEPA. In a 1987 decision, the Court found that the Forest Service would need to prepare a supplement to the 1981-86 EIS to address issues raised by departures from the original 1981-86 Operating Plan. The departures have included the deletion or deferral of harvest units on lands selected for conveyance to Native corporations under the Alaska Native Claims Settlement Act (ANCSA) of 1971.

In addition to changing the Operating Plan, the Court identified three other issues requiring further analysis including: the need to consider a no-action alternative specific to the Upper Game Creek area of Chichagof Island, the need for more site-specific detail regarding environmental effects of alternate road and harvest configurations in the upper Game Creek area, and additional analysis in the Upper Game Creek area of the foreseeable cumulative impacts on the environment resulting from an expanding network of roads and harvest units.

The Forest Service decided to supplement both the 1981-86 and 1986-90 EISs because both documents analyzed many of the same harvest areas and dealt with the same issues, and reanalysis of issues in the 1981-86 EIS could affect the same issues in the 1986-90 EIS. The Notice of Intent to produce the Supplemental EISs was published in the Federal Register October 15, 1987.

The EIS Supplement has been prepared in two phases. Phase I provided information and analysis of the issues, narrowing the focus from the whole APC Long-term Timber Sale area to four specific Analysis Areas (2, 3, 6, and 12) that should be further evaluated for timber harvest and road construction through the balance of the Plan period ending December 31, 1990. The SEIS for Analysis Area 12 presents site-specific environmental impacts of proposed roads and harvest units for a portion of Kuiu Island, designated as Analysis Area 12.

This SEIS uses four main chapters to discuss the purpose and need for supplementing the previous EISs, the alternatives including the proposed action, the existing conditions of the affected environment, and the environmental consequences of the alternatives as well as measures to mitigate adverse effects. A number of appendices contain supporting materials.

On the basis of the Phase I and Phase II SEIS analysis, the Regional Forester must decide:

- Whether or not a) the changes in land ownership, b) deferrals, deletions, or changes of timber-harvest units, and c) the effects of the Alaska National Interest Lands Conservation Act (ANILCA) subsistence legislation warrant amending the Records of Decision for the 1981-86 or 1986-90 FEISs.
- Whether or not the contractual timber commitments between the date of publication of this document and the end of the 1986-90 Operating Period should be met from Value Comparison Units (VCUs) that have some existing access roads and harvest units.
- If the contractual commitments are not met from previously roaded VCUs, how much additional timber will be needed and from which VCUs the timber harvest will be scheduled.

Analysis Area 12

The issues discussed in the 1981-86 and 1986-90 EISs include:

1. The socioeconomic effects of logging and associated development on employment, business, populations, and quality of life.
2. The costs and benefits or trade-offs between environmental protection measures and the economics of the harvest activities.
3. The effects of timber harvest activities on fish habitat.
4. The effects of timber harvest activities on wildlife habitat.
5. The distribution of harvest by volume class.
6. The locations and environmental effects of log transfer facilities.
7. Maintaining resource values in high interest areas noted for fisheries, wildlife, recreation, or other values.
8. Effects on visual, recreation, and wilderness resources.

Other issues specified by the Court during the appeals process include consideration of a no-action alternative, consideration of effects on subsistence pursuant to Section 810 of ANILCA, and consideration of foreseeable long-term and cumulative effects of timber harvest. In 1988, a case (*Hanlon v. Barton*) filed in Federal District Court raised several issues regarding the effects of timber harvest near Hoonah on subsistence users. The Court recognized the merit of some claims, which have implications for Analysis Area 12: consideration of a no-further-harvest alternative and consideration of "carryover" logging and road construction.

To address the issues and comply with NEPA regulations while meeting the APC Contract requirements, the Forest Service developed five alternatives for the Analysis Area 12 SEIS. Alternative 1, the No Action/Current Direction/No Further Harvest option, would permit the activities currently authorized by the Court to continue in nondeferred VCUs. Alternative 2 - West Security Bay proposes to harvest 87.4 MMBF, construct 27.2 miles of system roads, and use the existing log transfer facilities and logging camp at Rowan Bay. Alternative 3 - No Name Bay proposes to harvest 124.8 MMBF, construct 37.3 miles of new road, and construct a new log transfer facility and logging camp at No Name Bay. Alternative 4 - North Kuiu proposes to harvest 93.8 MMBF, construct 23.4 miles of new road, and use the existing log transfer facilities and camp at Rowan Bay. Alternative 5 - Threemile Arm proposes to harvest 105.3 MMBF, construct 29.6 miles of new road, and use the existing log transfer facilities and camp at Rowan Bay.

Alternative 1, the no action alternative, would have no additional environmental impacts. None of the action alternatives would locate roads or units on high hazard soils; each of the alternatives would disturb soils on about 5 to 10 percent of most harvest units. The alternatives would alter noncommercial and understory species composition, but not to a significant extent. Planting and precommercial thinning would be scheduled to accelerate both understory and remaining conifer growth rates for longer periods of time.

None of the action alternatives would affect eagle trees, and only Alternative 2 would affect beach fringe or estuarine fringe habitat. The alternatives would impact between 0.4 percent (Alternatives 4 and 5) and 0.7 percent (Alternative 2) of existing deer winter range. While Alternative 2 would not affect inland wetlands, the other alternatives would impact between 0.3 (Alternative 4) and 1.3 (Alternative 3) percent. The alternatives would impact between 0.5 percent (Alternatives 2, 3, and 4) and 0.9 percent (Alternative 5) of streamside/riparian zones.

For all alternatives, AHMU buffers of 100 feet will be maintained on Class I and II streams, except one unit each in VCUs 417 and 419, which have 50 foot buffers. The alternatives

would involve from one (Alternative 2) to four (Alternative 3) Class I stream crossings. None of the alternatives would affect more than 1.3 percent of available Class I and Class II fisheries habitat. Likewise, all of the alternatives would result in a low potential for increased stream runoff. Application of standards and guidelines is expected to minimize erosion impacts.

While Alternatives 2, 4, and 5 would not change the marine environment, Alternative 3 would construct a log transfer facility at No Name Bay, with minor impacts on marine life. None of the alternatives would affect land status. Alternative 2 would affect recreation opportunities west of Security Bay; Alternatives 4 and 5 would affect areas near Kadake Creek with the latter extending road construction around Threemile arm. Alternative 3 would have the most effects on recreation, shifting East Kuiu from primitive/pristine opportunities to a roaded setting, removing an anchorage in No Name Bay, and harvesting areas along Kadake Creek.

The alternatives fail to meet assigned visual quality objectives in a few VCUs ranging from one (Alternative 4) to three (Alternative 3). No known cultural resource sites will be affected by the alternatives. The Forest Service would conduct inventory, evaluation, and mitigation of cultural resources sites pursuant to an agreement with the State Historic Preservation Officer, to avoid adverse impacts under any alternative adopted in the ROD

A Subsistence Evaluation was conducted pursuant to ANILCA Section 810, including public hearings held in subsistence communities in the vicinity of Analysis Area 12. It found that none of the Analysis Area 12 alternatives would cause an immediate or reasonably foreseeable significant possibility of a significant restriction of subsistence use of wildlife, fish and shellfish, or other food resources. The evaluation further found that enough is known about foreseeable, programmatic Forest Service activities and foreseeable other potential activities to project that the cumulative effects may possibly restrict subsistence uses..

The action alternatives were found to be similar in evaluating most of the issues. Most of the issues concern environmental impacts, including effects on fish and wildlife habitat and the marine environment, visual resources, recreation, wilderness, and high interest areas, which were concluded to be minimal. The analysis found that none of the action alternatives would harvest a significant amount or percentage of high volume stands.

Chapter 4 of the SEIS for Analysis Area 12 identifies numerous measures applied to mitigate the adverse impacts of timber harvest activities. These measures are used to protect or enhance fish and wildlife habitat, protect aesthetic values, prevent landslides and windthrow, and improve timber stands. Various Forest Service documents have discussed the standards, guidelines, monitoring, and mitigation measures in detail. Their purpose is to foresee and avoid or prevent potential problems in the planning phases of forest management. The potential effectiveness of proposed mitigation measures is also discussed.

Mitigation measures identified in Chapter 4 of the SEIS include, for example, creating irregular unit boundaries on visually sensitive units, using log yarding suspension requirements to protect sensitive soils, and providing signs to direct recreation traffic along the trails affected by harvest activities. Other mitigation measures consist of monitoring recreation use to determine the need for access restrictions, using streambank protection measures to maintain stable stream channels, using second-growth management techniques for areas of harvested deer winter range, and avoiding known cultural resources sites.

The alternatives differ considerably in economic benefits. The no action Alternative 1 would result in a potential loss of some 417 jobs, and about \$9.6 million in salaries for the 49 MMBF of volume not harvested. By contrast, Alternative 2 would maintain 743 jobs and about \$17.2 million in salaries. Alternative 4 would maintain 797 jobs and \$18.5 million in salaries. Alternative 5 would maintain 895 jobs and about \$20.8 million in salaries. Alternative 3 would maintain 1061 jobs and about \$24.6 million in salaries.

Analysis Area 12

Selection of the no action Alternative 1 would close, for a period of time, the Rowan Bay logging camp and relocate its 134 residents. Alternative 1 would also reduce the supply of wood to the Wrangell mill, resulting in a loss of about 80 jobs, and reduce the supply of pulp to the APC mill in Sitka. This alternative would require the Forest Service to provide sufficient volume in other parts of the APC Contract area, and probably would cause the Forest Service to breach contractual obligations.

The volume harvested under Alternative 2 is in the low range of that projected in Phase I of the SEIS. This alternative is considered to be low to moderate in effectiveness to implement TLMP guidelines for LUD IV VCUs. Because it proposes harvest within the viewshed of a state marine park, there may be public controversy over the alternative.

Alternative 3 proposes to construct the No Name Bay LTF and connect the road system between Rowan Bay and No Name Bay. It is rated highest in meeting APC contractual volume needs projected in Phase I of the SEIS. This alternative proposes activities in No Name Bay, Alvin Bay, and Seclusion Harbor, which were identified as moratorium areas in proposed House Bill 1516 and more recently proposed for wilderness in House Bill 987. Public concern exists over construction of a LTF in No Name Bay.

Alternative 4 is rated moderate in effectiveness in terms of implementing guidelines in a LUD IV area and providing the middle range of volume for APC contractual needs. Alternative 4 proposes no harvest in areas of known controversy and construction of road into previously unroaded areas is minimized. Alternative 5 is the same as Alternative 4 except for adding road construction and harvest units along a portion of Threemile Arm. It would provide volume at the upper end of the range projected to meet APC contractual obligations.

The Stikine Area management team evaluated the benefits and impacts of each alternative against the issues to recommend the preferred alternative. Alternative 5 is tentatively identified as the preferred alternative, pending further consideration in the Record of Decision.

Comparison of the Alternatives

The comparison of alternatives draws together the conclusions from the materials presented throughout the SEIS and summarizes the results of the analysis. It also presents the rationale leading to the identification of a preferred alternative. The following section compares the environmental impacts of the alternatives on the basis of the detailed analyses given in Chapter 4 of the SEIS for Analysis Area 12. The discussion focuses on the issues, presenting a perspective on their perceived importance.

Impact Comparison

Table AA12-1, Summary Comparison of Alternatives, provides a summary comparison of the impacts anticipated from each of the alternatives. This table summarizes more detailed information found in Chapter 4, Environmental Consequences, of the SEIS for Analysis Area 12. Figure AA12-1 shows a comparison of road construction for all alternatives.

Issue Comparison

The following paragraphs compare the alternatives in terms of the issues listed above and described in Chapter 1 of the SEIS.

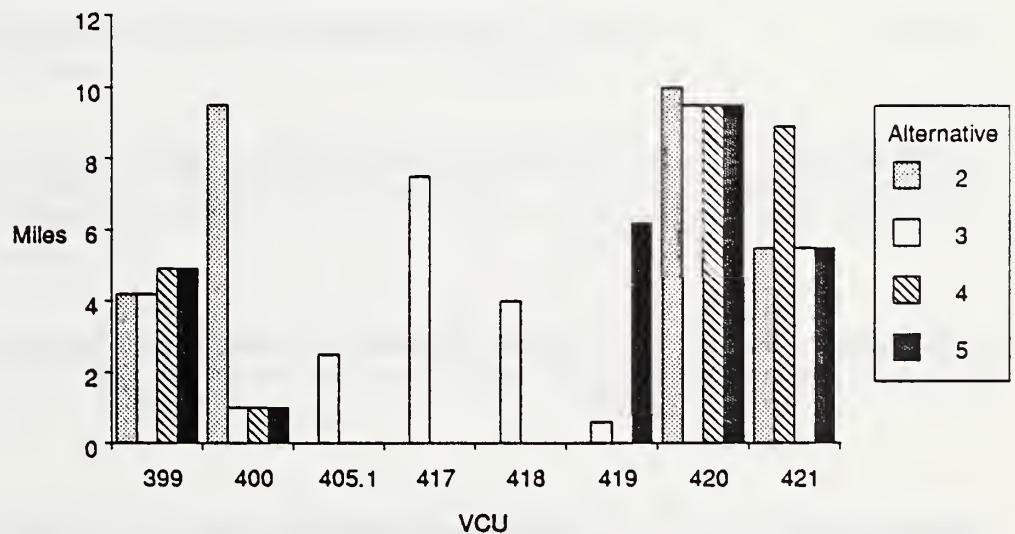
Issue 1: Socioeconomic effects of timber harvesting and associated development.

The baseline for comparing the alternatives is the No Action Alternative. The Forest Service predicts that all of the available volume in the nondeferred VCUs will be harvested by the end of the 1989 operating season. This Alternative assumes that no further volume would be made available to support the existing operations at Rowan Bay for the balance of the Operating Period ending December 31, 1990. This Alternative would result in the following:

1. As many as 170 existing jobs could be lost in the logging, sawmill, and pulp production industries. As many as 110 additional jobs could be lost in other related industries in Southeast Alaskan communities. These job losses could be avoided if new timber volume, that would otherwise not be harvested, could be made available from other sources.
2. The logging camp at Rowan Bay would be forced to close, and its 134 employees, dependents, support staff, and service personnel, such as the local school teachers, would have to seek employment elsewhere. The financial impact to these people would range from an estimate of \$134,000 to \$402,000. The social impacts associated with disruption of their existing life styles would be significant to those individuals.
3. There is a very strong probability that the short notice cancellation of existing logging contract volume would force the operations at Rowan Bay to be moved to another area or to be closed down until additional volume could be found elsewhere. The precise financial impact of such an event to APC is not known. A similar projected event to an independent logging contractor in Analysis Area 3 is expected to result in a combined loss of about \$6 million (Appendix A-4a, Draft SEIS).
4. The Alaska Wrangell mill currently relies very heavily upon timber made available under the APC Contract. Company officials have stated that a loss of this magnitude would cause them to reduce employment to a single shift, resulting in a loss of 80 jobs (Appendix A-4b, Draft SEIS). A reduction to a single shift would also have the relative impact of doubling the fixed costs of the sawmill, according to its manager. The impact of such a change in the employment base of Wrangell would be major.

Figure AA12-1

Road Construction Required for Each Alternative in Each VCU¹



SOURCE: SEIS Planning Record.

¹ All currently authorized road construction is anticipated to be completed prior to the ROD, therefore no road construction is shown for Alternative 1.

Analysis Area 12

Table AA12-1

Summary Comparison of Alternatives¹

	Alternative 1 No Action/Current Direction	Alternative 2 West Security Bay
Soils	No additional impacts.	No units or roads would be located on high hazard soils. This would greatly reduce the potential to adversely impact soil productivity, mass wasting, and soil loss.
Vegetation	Tree species composition and density would not change. No planting or pre-commercial thinning would be needed.	Tree and understory species composition would be slightly altered on 2,595 acres. Precommercial thinning would be scheduled to accelerate both understory and conifer growth rates.
Wildlife		
<i>Beach Fringe</i>	No additional impacts.	Parts of a road would be located in beach fringe affecting 6 acres.
<i>Estuarine Fringe</i>	No additional impacts	Road would be located within estuarine fringe at the head of Security Bay affecting 18 acres.
<i>Eagle Sites</i>	No known eagle nest sites would be impacted.	No known eagle nest sites would be impacted.
<i>Deer Winter Range</i>	Deer winter range would not be impacted.	Greatest impact on deer winter range (DWR). Approximately 573 acres or 0.7 percent of existing DWR impacted. This is within TLMP Guidelines of 4 percent LUD III and 5 percent LUD IV.
<i>Inland Wetlands</i>	Inland wetlands would not be impacted.	Inland wetlands would not be impacted.
<i>Streamside/Riparian</i>	Streamside/Riparian habitat would not be impacted.	Total of 8 acres or 0.5 percent of Streamside/Riparian acres in road right-of-way. TLMP calls for 20 percent in LUD III or 10 percent in LUD IV to be retained. Impacts are within TLMP Guidelines.

(Table Continued)

Alternative 3 No Name Bay

Alternative 4 North Kuiu

Alternative 5 Threemile Arm

Impacts would be the same for all action alternatives.

Tree and understory species composition would be slightly altered on 3,120 acres. Precommercial thinning would be scheduled to accelerate both understory and conifer growth rates.

Tree and understory species composition would be slightly altered on 2,656 acres. Precommercial thinning would be scheduled to accelerate both understory and conifer growth rates.

Tree and understory species composition would be slightly altered on 2,965 acres. Precommercial thinning would be scheduled to accelerate both understory and conifer growth rates.

No additional impacts.

No additional impacts.

No known eagle nest sites would be impacted by any of the alternatives.

Second highest impact on DWR. Approximately 408 acres or 0.5 percent of existing DWR impacted. This is within TLMP Guidelines.

Least impact on DWR. Approximately 307 acres or 0.4 percent of existing DWR impacted. This is within TLMP Guidelines.

Least impact on DWR. Approximately 307 acres or 0.4 percent of existing DWR impacted. This is within TLMP Guidelines.

Total of 204 acres or 1.3 percent of inland wetlands impacted. This is within TLMP guidelines of 85 percent in LUD III and 25 percent in LUD IV to be retained.

Total of 40 acres or 0.3 percent of inland wetlands impacted. This is within TLMP guidelines.

Total of 64 acres or 0.4 percent of inland wetlands impacted. This is within TLMP guidelines.

Total of 8 acres or 0.5 percent of Streamside/Riparian acres in road right-of-way. Impacts are within TLMP Guidelines.

Total of 8 acres or 0.5 percent of Streamside/Riparian acres in road right-of-way. Impacts are within TLMP Guidelines.

Total of 16 acres or 0.9 percent of Streamside/Riparian acres in road right-of-way. Impacts are within TLMP Guidelines.

(Table Continued)

Analysis Area 12

Table AA12-1 (Continued)

Summary Comparison of Alternatives¹

	Alternative 1 No Action/Current Direction	Alternative 2 West Security Bay
Fish Habitat		
<i>Aquatic Habitat Management Units</i>	No additional impacts.	AHMU buffers of 100 feet will be maintained on Class I and Class II streams, except one unit each in VCUs 417 and 419, which have 50 foot buffers.
<i>Roads and Crossings</i>	No additional impacts.	No roads would require AHMU protection measures. One Class I stream crossing would require benefit/cost analysis.
<i>Stream Flow</i>	No change	Little potential for change in stream flows.
<i>Sediment</i>	No change	Application of standards and guidelines is expected to minimize impacts to soils.
Marine Environment	No change	No change
Land Status	No change	No change
Recreation	Would maintain the existing recreational character of Kuiu Island.	Logging west of Security Bay would represent the largest change in recreation opportunities within a dispersed use site.
Visual	Visual character would not be affected.	Five VCUs would be entered and three meet assigned VQOs. Security Bay would appear in a modified condition. Assigned VQOs would be met in other VCUs.

(Table Continued)

Analysis Area 12

Alternative 3 No Name Bay

Alternative 4 North Kuiu

Alternative 5 Threemile Arm

AHMu buffers of 100 feet will be maintained on Class I and Class II streams, except one unit each in VCUs 417 and 419, which have 50 foot buffers.

One mile of road would require AHMu protection measures. Four Class I stream crossings would require benefit/cost analysis.

No roads would require AHMu protection measures. Two Class I stream crossings would require benefit/cost analysis.

0.3 mile of road would require AHMu protection measures. Two Class I stream crossings would require benefit/cost analysis.

Little potential for change in stream flows.

Application of standards and guidelines is expected to minimize impacts to soils.

Low-angle slide LTF at No Name Bay. Low potential for impacting marine fisheries outside the sill. Little impact on salmon or herring or crab. It is estimated that 3.3 acres of 19,800 acres of habitat will be impacted by the LTF. This is equal to 0.02 percent.

No change

No change

No change

No change

No change

East Kuiu would shift from primitive opportunities to roaded setting. LTF would directly affect boat anchorage at No Name Bay. Harvest proposed along Kadake Creek would affect recreation users.

Least impact on recreation except for Alternative 1. Harvest proposed along Kadake Creek would affect recreation users.

Generally, same impacts as in Alternative 4 plus the extension of road around Threemile Arm.

Eight VCUs entered and five meet assigned VQOs. No Name Bay area would be visibly altered as would areas seen inland from Kadake Creek.

Five VCUs entered and four meet assigned VQOs. This alternative causes least impact to visual character of North Kuiu. Impacts to Kadake Creek are the same as Alternative 3.

Six VCUs entered and four meet assigned VQOs. Impacts are the same as in Alternative 4. Visual character of north-east Threemile Arm would be visibly altered by two harvest units.

(Table Continued)

Analysis Area 12

Table AA12-1 (Continued)

Summary Comparison of Alternatives¹

	Alternative 1 No Action/Current Direction	Alternative 2 West Security Bay
Cultural Resources	No impact	Estimate six harvest units, or 247 acres, and approximately 10 miles of road will require more detailed field examination prior to development.
Socioeconomics	Impacts would include loss of 417 existing jobs and \$9.6 million in salaries for the timber industry, closure of Rowan Bay logging camp, and a potential loss of 80 jobs at the Wrangell mill.	Harvest volume would provide for 747 jobs and \$17.3 million in salaries inclusive of direct, indirect, and induced employment effects.
Subsistence	Insignificant possibility of a significant restriction of subsistence use.	Insignificant possibility of a significant restriction of subsistence use.
Timber/Firewood	Free use policies not affected.	Free use policies not affected.
Reasonably Foreseeable, Long-Term, and Cumulative Effects	Minimal effects on all resources evaluated.	Minimal effects on all resources evaluated.

¹ A detailed comparison of impacts is found in Chapter 4 of the SEIS for Analysis Area 12.

Alternative 3 No Name Bay	Alternative 4 North Kuia	Alternative 5 Threemile Arm
Estimate three harvest units, or 130 acres, and 3 miles of specified road construction will require more detailed field examination prior to development.	Estimate three harvest units, or 130 acres, and 3 miles of specified road construction will require more detailed field examination prior to development.	Estimate four harvest units, or 150 acres, and approximately 4 miles of specified road will require more detailed field examination prior to development.
Harvest volume would provide for 1,061 jobs and \$24.6 million in salaries inclusive of direct, indirect, and induced employment effects.	Harvest volume would provide for 797 jobs and \$18.5 million in salaries inclusive of direct, indirect, and induced employment effects.	Harvest volume would provide for 895 jobs and \$20.8 million in salaries inclusive of direct, indirect, and induced employment effects.
Insignificant possibility of a significant restriction of subsistence use.	Insignificant possibility of a significant restriction of subsistence use.	Insignificant possibility of a significant restriction of subsistence use.
Free use policies not affected.	Free use policies not affected.	Free use policies not affected.
Minimal effects from all alternatives on all resources evaluated.		

Analysis Area 12

5. A no further harvest alternative in Analysis Area 12 would have severe consequences on the ability of the United States Government - Forest Service to meet its contractual obligations to the Alaska Pulp Corporation. The volume available from the other analysis areas being further evaluated in this Supplement is not sufficient to meet the contract needs and be within the SEIS time frame. The No Further Harvest Alternative would likely cause the Government to breach the terms of the Contract. Such a breach would likely result in a large damage claim.

Alternatives 2 through 5 provide varying amounts of timber, as described in this chapter. Given the current production rate of the logging operations at Rowan Bay, these alternatives would provide sufficient volume to keep the existing employment opportunities in place in Analysis Area 12 through mid- to late 1991. In supplying the most volume, Alternative 3 would provide the longest continued period of employment, followed by Alternatives 5, 4, and 2, respectively. Subsequent planning efforts would analyze continued harvest alternatives for Analysis Area 12 prior to 1991.

Issue 2: Costs and benefits associated with implementing the 1986-90 Operating Plan.

The No Action Alternative provides the baseline for comparing the impacts of this issue. The summary of cost/value analysis presented in the Economic Comparison section of the SEIS describes the dollar values maintained or forgone by each of the alternatives. The No Action Alternative could also impact the cost of operation at the APC Pulp Mill, where a volume disruption of this magnitude could cause the pulp mill to experience temporary shutdowns. The cost of a temporary shutdown is estimated by APC to be \$500,000, plus \$4,800 for every day of shutdown (Appendix A-4c, Draft SEIS). None of the alternatives would have any measurable direct effect on commercial fishing, recreation/tourism, or other sectors of the economy.

Issue 3: Effects of timber harvest and related activities on fisheries habitat.

The No Action Alternative provides the baseline for comparing the alternatives. The assumptions made for the socioeconomic issue also pertain to the comparison of proposed timber harvest alternative effects on fisheries.

The evaluation in Chapter 4 of the SEIS shows that the potential effects on the fisheries resources evaluated are minimal. Forest Service staff followed the Alaska Region Aquatic Habitat Management Unit (AHMU) Guidelines (Forest Service 1986a) in developing the timber harvest alternatives to minimize the potential for impact on the valuable salmon and trout fisheries in Analysis Area 12. Adhering to the AHMU Guidelines during the formation of alternatives minimized the total stream bank miles affected, the number of stream crossings, and the amount of potential road construction within designated AHMUs. Site-specific prescriptions have been developed to minimize the potential for impact on the stream spawning and rearing habitat where it was necessary to encroach into an AHMU. The site-specific aquatic habitat management unit prescriptions are noted on the individual timber harvest unit cards, which are included in Appendix A-1 of the SEIS for Analysis Area 12. The planning record contains unit cards for all harvest units being evaluated. In addition, Forest Service staff carefully adhered to the Log Transfer Facility Siting Guidelines (Forest Service 1988a, Appendix G) in selecting a potential LTF site in Alternative 3 to minimize the potential impacts on crab rearing habitat in No Name Bay.

The range of potential stream crossings to be constructed varies from three in Alternatives 4 and 5 to four in Alternatives 2 and 3. Only Alternatives 3 and 5 propose to construct any road within an AHMU (0.3 mile for Alternative 5 and 1.0 mile in Alternative 3). Miles of proposed timber harvest within an AHMU ranged from 5 miles in Alternative 2 to 7.8 miles in Alternative 5. Miles of proposed timber harvest to stream banks of Class I or Class II streams varies from 1.4 miles or 0.67 percent of the habitat in Alternative 4 to 3.0 miles or 1.3 percent of the habitat in Alternative 3.

Issue 4: Effects of timber harvest and related activities on wildlife habitat.

The No Action Alternative provides the baseline for comparing the alternatives. The assumptions made for the socioeconomic issue also pertain to the comparison of proposed timber harvest alternative effects on wildlife. Two points in time were used to evaluate the extent of potential wildlife effects. For comparison of the percent reduction of habitat capability, a point in time prior to data collection for the Tongass Land Management Plan was used (pre-1976). A point in time prior to any timber harvest was used to compare acres of emphasis species habitats affected.

The analysis in Chapter 4 of the SEIS for Analysis Area 12 shows that the potential effects on the wildlife resources evaluated are minimal (Tables AA12-2 through AA12-4). The range of differences for all habitat types between Alternative 1, the No Action Alternative, and Alternatives 2 through 5 (action alternatives) are all less than 3 percent.

Based on current habitat capability projections, Analysis Area 12 has the potential to support over 9,000 deer and over 500 pine martens, although the deer population has not recovered from the severe winters in the late 1960s and early 1970s. The potential effects on habitat capability by the proposed timber harvest alternatives range from 88 to 166 deer and 7 to 25 pine martens (Table AA12-2). The potential percent reduction by alternative ranges from 0.9 to 1.6 percent for deer and 0.9 to 2.8 percent for pine marten.

Table AA12-3 shows the acres of inventoried wildlife emphasis species habitat that would be affected by the proposed timber harvest alternatives along with the percent of remaining emphasis species habitat. Although the acres affected vary among the alternatives, the amounts are small by comparison with the total inventoried emphasis species habitat acres.

The Record of Decision for the 1986-90 Operating Period FEIS for the APC Long Term Timber Sale prescribed approximately 88,500 acres to be managed in Old Growth Habitat Condition for wildlife, of which approximately 39,200 acres are in Analysis Area 12. The prescription was to remain until the next NEPA assessment. The Supplement shows the effect on that designated Old-Growth Habitat of the new alternatives considered in this NEPA assessment. Table AA12-4 shows the range of acres that would be affected and the percent of Old-Growth Habitat Condition remaining by proposed timber harvest alternative. Timber harvest effects shown for the emphasis species and emphasis habitats are indicative of the effects on other wildlife and their habitats.

Table AA12-2

Projected Changes In Wildlife Habitat Capability Based on Models

	Alternative				
	1	2	3	4	5
Deer Habitat Capability					
Potential Reduction (individuals)	— ¹	88	166	134	147
Potential Reduction (percent)	— ¹	0.9	1.6	1.3	1.4
Pine Marten Habitat Capability					
Potential Reduction (individuals)	— ¹	8	25	13	9
Potential Reduction (percent)	— ¹	0.9	2.8	1.5	1.0

SOURCE: Forest Service in consultation with ADF&G (SEIS Planning Record) - see Appendix C-3, theme response on data adequacy and model use.

¹ No additional change.

Analysis Area 12

Issue 5: Distribution of Harvest by Volume Class.

Table AA12-5 summarizes the acres proposed for harvest by volume class. Figure AA12-2 shows the cumulative percentage of acres in each volume class previously harvested or proposed for harvest under each alternative. For all of the alternatives, the majority of the cumulative harvest (over 50 percent) would come from Volume Class 6 timber, and would result in harvest of 2.9 to 3.7 percent of all Volume Class 6 timber in Analysis Area 12. Alternative 3 would result in harvest of more Volume Class 7 timber than the other alternatives, cumulatively about 15 percent of the Volume Class 7 timber in Analysis Area 12, compared with the 2 to 3 percent proposed by the other alternatives.

Generally, harvest of high volume stands occurs in proportion to the amount of road construction planned to access unroaded areas (Forest Service 1986b, p.1-19). Alternatives 2 and 4 would harvest the least amount of high volume stands and a greater percentage of marginal stands, while also building the least amount of system road. Alternative 3 would harvest the greatest percentage of high volume stands, but would also construct a main arterial road and a LTF in No Name Bay.

Table AA12-3

Changes In Wildlife Habitat Due To Timber Harvest

	Alternative				
	1	2	3	4	5
Forested					
Proposed Harvest (acres)	0	2,595	3,120	2,656	2,965
Percent Remaining	89	87	87	87	87
Deer Winter Range					
Proposed Harvest (acres)	0	573	408	307	307
Percent Remaining	92	91	91	92	92
Inland Wetland					
Proposed Harvest (acres)	0	0	204	40	64
Percent Remaining	97	97	96	97	97
Beach Fringe					
Proposed Harvest (acres)	0	0	0	0	0
Percent Remaining	95	95	95	95	95
Estuarine Fringe					
Proposed Harvest (acres)	0	0	0	0	0
Percent Remaining	98	98	98	98	98
Streamside Riparian					
Proposed Harvest (acres)	0	8	8	8	16
Percent Remaining	98	98	98	98	97

SOURCE: 1986-90 FEIS (Forest Service 1986b) with revisions from additional ground verification (SEIS Planning Record).

Table AA12-4

Changes in Old-Growth Habitat Conditions Due to Timber Harvest¹

	Alternative				
	1	2	3	4	5
Old-Growth Conditions					
Proposed Harvest (acres)	0	499	138	165	204
Percent Remaining	100.0	98.7	99.6	99.6	99.5

Source: 1986-90 FEIS (Forest Service 1986b).

¹ Term refers to old-growth as described on page 4-13, 1986-90 FEIS.**Issue 6: Log Transfer Facility (LTF) locations and potential environmental effects.**

Only Alternative 3 (No Name Bay) proposes to build a new LTF; the other alternatives propose to use only the existing LTF at Rowan Bay. The detailed environmental effects of 8 alternative sites at No Name Bay are documented in an Environmental Assessment completed in April 1987 (Appendix B-1, Draft SEIS). The low-angled slide design proposed at Site 4 is expected to reduce the annual crab catch by 6.6 pounds, the weight of approximately two large adult male crabs. Forest Service analysis indicates negligible impacts would occur to salmon, crab, or herring fisheries. The possible impacts on subsistence resource users is discussed in more detail in the SEIS for Analysis Area 12.

Issue 7: Effects on resource values of high-interest areas.

High-interest areas were defined based on public response, in the 1986-90 FEIS (Forest Service 1986b, p. 1-20). In Analysis Area 12, these areas were defined as being the east side of Port Camden (VCU 420) for fisheries and wildlife values. Others noted Kadake (VCU 421) and the southern half of the East Kuiu Management Area, Alvin Bay (VCU 416), No Name Bay (VCU 417), Seclusion Harbor (VCU 418), and Threemile Arm (VCU 419) as priorities for interim protection until the revision of TLMP.

Table AA12-5

Acres Proposed for Harvest

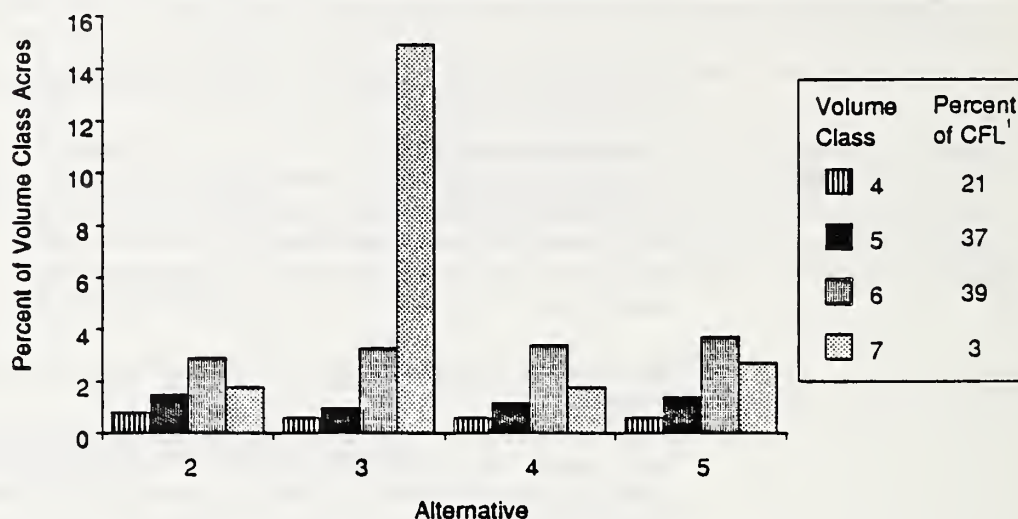
Volume Class ²	Alternative ¹			
	2	3	4	5
4	229	179	169	169
5	763	532	610	717
6	1,508	1,716	1,782	1,944
7	85	683	85	125
Total Acres	2,585	3,110	2,646	2,955

Source: Multi-Entry Layout Process database, Sitkin Area Supervisor's Office, Petersburg, AK.

¹ The No Action Alternative, Alternative 1, is not displayed as additional volume is not being proposed for harvest.² Volume Classes 1 through 3 (not presented) contain less than 8 MBF/acre; Volume Class 4 contains 8-20 MBF/acre; Volume Class 5 contains 20-30 MBF/acre; Volume Class 6 contains 30-50 MBF/acre; and Volume Class 7 contains 50 or more MBF/acre.

Figure AA12-2

Cumulative Percentage of Volume Classes, Including Proposed Harvest



Source: Multi-Entry Layout Process database, Stikine Area Supervisor's Office, Petersburg, AK.

¹ Value includes volume classes 4 through 7 only.

Alternative 2 would not harvest any units identified in 1986-90 FEIS as "high interest," but would propose 6 units along the western side of Security Bay, an area not selected for harvest in 1986-90. Alternative 3 proposes harvesting 16 units in the deferred area of East Kuiu (VCUs 416 to 419). Alternatives 4 and 5 propose harvesting 2 units in the Kadake Creek drainage (VCU 421). Chapter 4 of the SEIS for Analysis Area 12 contains a more detailed discussion of the impacts on resources of concern in these areas.

Issue 8: Effects on visual, recreation, and wilderness resources.

Visual Resources: Alternative 1 would maintain the current visual condition of Analysis Area 12. Of the action alternatives, Alternative 4 would have least effect on the visual character of North Kuiu Island. Overall, the proposed activities meet the assigned VQOs with the exception of activities seen from Kadake Creek (VCU 421).

Alternative 2 proposes activities on the west side of Security Bay (VCU 400) as well as those proposed in Alternative 4. Security Bay would appear in a modified condition, with harvest activities and the private residence on the east side of Security Bay evident from the state marine park.

Alternative 3 includes activities in No Name Bay (VCU 417), Seclusion Harbor (VCU 418) and the Tebenkof area (VCU 405.1) in addition to those proposed in Alternative 4. The visual character of No Name Bay would appear in a modified condition, considering the combined effects of the harvest units and log transfer facility.

Alternative 5 includes activities along the northern shore of Threemile Arm as well as all those proposed in Alternative 4. As seen from Threemile Arm the two most southern units would not meet the assigned VQOs.

Recreation Resources: All of the action alternatives propose new roads and harvest units, increasing recreational access to interior sections of the Island.

An analysis of individual cutting units and their relationship to known use sites indicates that Alternative 2 would cause the greatest impact to the recreation experience (i.e., waterfowl hunting) with road construction west of Security Bay (VCU 400). Harvest activities in Alternative 3 would impact a developed trail serving the Tebenkof Bay Wilderness (VCU 418). Alternatives 4 and 5 would result in the least effects. None of the alternatives is expected to significantly influence recreation growth because they will change neither the access nor the resources that provide recreational demand. Current use is fairly low in comparison to total use in the Stikine area (See Figure 3-6). No impacts are anticipated on the experiences of recreation cabin users.

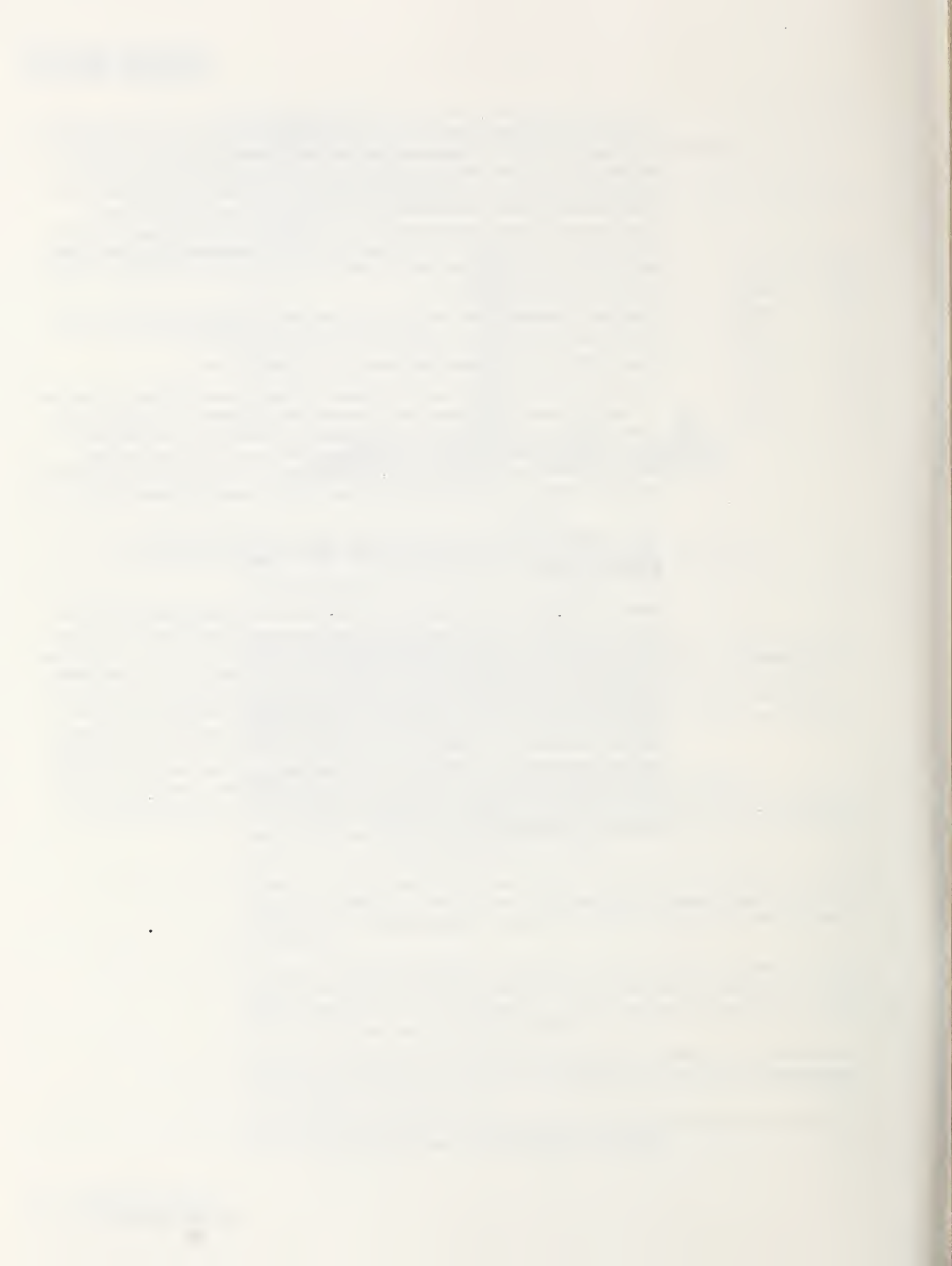
More detailed information on visual, recreation, and wilderness resources can be found in Chapter 4, Environmental Consequences, of the SEIS for Analysis Area 12.

Issue 9: Effects of proposed activities on subsistence uses

The ANILCA Section 810 Subsistence Evaluation in Chapter 4 of the SEIS for Analysis Area 12 found that none of the Analysis Area 12 alternatives would cause an immediate or reasonably foreseeable significant possibility of a significant restriction of subsistence use of wildlife, fish and shellfish, and other food resources. The evaluation further found that enough is known about foreseeable programmatic Forest Service activities and other potential activities to project that the cumulative effects may possibly restrict subsistence uses.

Standards, Guidelines, and Mitigation Measures

Numerous mitigation, enhancement, and preventative measures that are used by the Forest Service are defined in several Forest Service Handbooks, the Alaska Regional Guide (Forest Service 1983), and the Tongass Land Management Plan (Forest Service 1979a, 1986d). Many of these guides were described in detail in the 1981-86 FEIS (Forest Service 1980a, Section III, Planning Alternatives and Recommendations) and in the 1986-90 FEIS (Forest Service 1986b, Subsection 2c). No new specific standards and guidelines were developed for the remainder of this Operating Period. Specific mitigation measures, as applied to each individual unit, can be seen on "As Planned" unit layout cards. These unit cards are an important tool for implementing the project as they list standards and guidelines and provide a mechanism for tracking the project implementation. They are reproduced in Appendix A-1 of the SEIS for Analysis Area 12. Unit cards also contain an evaluation of the potential effectiveness for the mitigation measures proposed.



* NATIONAL AGRICULTURAL LIBRARY



1022374603

